THE GOVERNMENT AS DOMINANT SHAREHOLDER: HOW SHOULD THE TAXPAYERS' OWNERSHIP RIGHTS BE EXERCISED?

HEARING

BEFORE THE

SUBCOMMITTEE ON DOMESTIC POLICY

OF THE

COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM

HOUSE OF REPRESENTATIVES

ONE HUNDRED ELEVENTH CONGRESS

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THE GOVERNMENT AS DOMINANT SHAREHOLDER: HOW SHOULD THE TAXPAYERS' OWNERSHIP RIGHTS BE EXERCISED?

WEDNESDAY, DECEMBER 16, 2009

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON DOMESTIC POLICY,
COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM,
Washington, DC.

The subcommittee met, pursuant to notice, at 10 a.m., in room 2154, Rayburn House Office Building, Hon. Dennis J. Kucinich (chairman of the subcommittee) presiding.

Present: Representatives Kucinich, Cummings, Tierney, Watson, and Jordon.

Staff present: Jaron R. Bourke, staff director; Michael Clark, professional staff member; Jean Gosa, clerk; Charisma Williams, staff assistant; Leneal Scott, information systems manager, full committee; Adam Hodge, deputy press secretary, full committee; Adam Fromm, minority chief clerk and Member liaison; Kurt Bardella, minority press secretary; Benjamin Cole, minority deputy press secretary; Christopher Hixon, minority senior counsel; Hudson Hollister and Marvin Kaplan, minority counsels; and Brien Beattie, minority professional staff member.

Mr. KUCINICH. Good morning. The Domestic Policy Subcommittee of the Oversight and Government Reform Committee will now come to order.

Today's hearing will examine the way that common equity shareholder rights acquired by the Treasury Department under authorities provided in the Emergency Economic Stabilization Act of 2008 have been exercised to date, and to assess alternative frameworks for exercising and protecting the taxpayers' interests.

Without objection, the Chair and ranking minority member will have 5 minutes to make opening statements, followed by opening statements not to exceed 3 minutes by any other Member who seeks recognition. And, without objection, Members and witnesses may have five legislative days to submit a written statement or extraneous materials for the record.

Today and tomorrow we will be examining how the Treasury Department is managing common equity, or voting, shares acquired under the Emergency Economic Stabilization Act of 2008. As a result of activities conducted under the Troubled Assets Relief Program, the Government is now a principal shareowner in four large, complex, and troubled companies: two from the financial services industry—AIG and Citigroup—and two from the auto industry—GM and Chrysler.

Like it or not, the U.S. Government is today the major common equity shareholder, the principal owner, in two of these companies, AIG and GM, and has an outsized role in two others. Establishing a clear chain of authority, responsibility, and accountability for our current exercise of fiduciary responsibility in the case of the four companies is an essential and unavoidable task if Congress, and in particular, the House of Representatives, is to uphold its constitutionally defined fiduciary responsibility to protect the public interest.

The main objective of these hearings is to assess how and how well the Treasury Department has upheld its fiduciary responsibilities in managing the resulting U.S. Government shareholding, and also to assess how and how well it has mobilized the full array of Government capabilities in support of turning around these firms and their industries, and in support of the broader purposes of Emergency Economic Stabilization Act.

A major theme today and tomorrow will be corporate governance. To an important degree, the failures of all four companies have resulted from failures in corporate governance—failures in risk management, failures in compliance, failures to hold executives accountable, and failures to rein in excessive corporate pay. And so the first question we have to ask is: Have the actions of the Federal Government had the effect of upholding best practices in corporate governance? Or, rather, does the way in which Treasury is managing our more than $200 billion stake in these four companies actually constitute a major step backward in corporate governance?

But this is only one part of what we need to examine. Remember that in choosing to provide the extraordinary authorities of EESA, Congress was not acting primarily as an investor. As defined in the Emergency Economic Stabilization Act of 2008, the Troubled Asset Relief Program [TARP], was intended to serve several purposes. Beyond providing liquidity to the financial system, EESA has as its second main purpose to ensure that the authorities and facilities created "are used in a manner that" promotes jobs and economic growth, helps homeowners stay in their homes, protects home values, retirement accounts, and life savings, "maximizes overall returns to the U.S. taxpayer," and "provides public accountability" for the exercise of the authorities granted. Thus, the purposes and obligations of the U.S. Government are not at all limited to the maximization of shareholder value, and our fiduciary obligations are not at all exhausted merely by upholding established best practices in corporate governance, as necessary and urgent as this is.

Now when it comes to broader issues, there is a really fundamental inequity.

Consider first how the Treasury Department has handled the financial companies. When it came to intervening in the large financial institutions, and certainly AIG and Citigroup, the U.S. Government could have simply purchased the companies for a song. Or it could have forced the banks through bankruptcies, and forced creditors and other stakeholders to take major haircuts to share the pain. But, instead, the path that was chosen guaranteed payoffs for all creditors, and guaranteed outsized bonuses to even the employees who were most directly responsible for nearly blowing up the world economy. The upshot: This holiday season, bankers are taking home the largest bonuses ever paid. Creditors have been made whole, and shareholders that counted on government support and stayed with the companies are seeing values restored, while others that bailed out and came back in after TARP money was flowing have made a killing.

But now wait; there is more. On the front page of this morning's Washington Post we see that the Treasury is so eager to placate the people at Citigroup and help them get out from under the thumb of the paymaster that it has agreed to allow Citigroup to keep billions of dollars in tax liabilities it would owe as soon as it pays back the TARP funds. These taxes are worth more than any alleged "profit" to taxpayers from the TARP repayment and interest.

I want the administration to know that we are going to look into this. I want the administration to know that we are going to look into this deeply. And I want all those at Citigroup who have had their tentacles across this Government to understand that we are watching this and we are looking at their every move that they have made. And if you want any further reference, you can look at Matt Taibbi's article in Rolling Stone, which I have read thoroughly, and it raises plenty of questions about Citigroup and people in the administration.

Now contrast the kid glove treatment given to the financial sector with the treatment of the auto companies and their stakeholders under TARP, the overall support and level of effort expended for the American auto industry, and the broader impact of the crisis and of Government intervention on U.S. manufacturing. In the case of the auto companies, shareholders were wiped out, and creditors, including pension funds, were forced to accept as little as 10 cents on the dollar for their previous investments. The impact of the auto rescue on employment was not to avoid major cuts in jobs or production. Instead, it was to accelerate pre-existing plans for downsizing U.S. production, work hours, pay scales, and dealerships by as much as 4 years. Plant closings, brand reductions, and, as we all know, dealer closures, and other restructurings were also advanced. More difficult to see, but equally important, is the impact on suppliers and their employees. What we do know is that even after the bailout, in October, GM's then CEO spoke openly of sourcing even more parts from Korea.

Finally, there seems to be a pattern of favoritism shown to the financial services industry, and of "malign neglect," when addressing issues of manufacturing, job creation, and decent blue-collar wages. To my knowledge, today's and tomorrow's hearings are Congress's first attempt to create some measure of accountability over Treasury's handling of U.S. shareholder interests financed through TARP. What the Domestic Policy Subcommittee has found preliminarily is that too much of what the Treasury Department has done seems to be designed to evade and obfuscate accountability. This is not acceptable. We need to find another way forward. We need to find or establish new agencies, with clear lines of authority, to do the jobs that TARP was intended to do. Left up to

Treasury on its own, those jobs are not getting done, and probably never will be.

[The prepared statement of Hon. Dennis J. Kucinich follows:]

ONE HUNDRED ELEVENTH CONGRESS

Congress of the United States

House of Representatives

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Opening Statement
Of
Dennis J. Kucinich
Chairman

Domestic Policy Subcommittee
Oversight and Government Reform Committee
Wednesday, December 16, 2009
2154 Rayburn House Office Building
10:00 a.m.

"The U.S. Government as Dominant Shareholder: How Should Taxpayers' Ownership Rights be Exercised?

December 16, 2009 – Part I: Public witnesses and GAO – DELIVERY STATEMENT

Today and tomorrow we will be examining how the Treasury Department is managing common equity, or voting, shares acquired under the Emergency Economic Stabilization Act of 2008 (EESA). As a result of activities conducted under the Troubled Assets Relief Program, the government is now a principal shareowner in four large, complex and troubled companies: two from the financial services industry – AIG and Citigroup, and two from the auto industry – GM and Chrysler.

Like it or not, the United States government is today the majority common equity shareholder – *the principal owner* – in two of these companies, AIG and GM, and has an outsized role in two others. Establishing a clear chain of authority, responsibility, and accountability for our current exercise of fiduciary responsibility in the case of the four companies is an essential and unavoidable task if Congress, and in particular, the House of Representatives, is to uphold *its* constitutionally defined fiduciary responsibility to protect the public interest.

The main objective of these hearings is to assess how and how well the Treasury Department has upheld its fiduciary responsibilities in managing the resulting U.S. government shareholding, and also to assess how and how well it has mobilized the full array of government capabilities in support of turning around these firms and their industries, and in support of the broader purposes of EESA.

A major theme today and tomorrow will be corporate governance. To an important degree, the failures of all four companies have resulted from failures in corporate governance – failures in risk management, failures in compliance, failures to hold executives accountable, and failures to rein in excessive corporate pay. And so the first question we have to ask is: Have the actions of the federal government had the effect of upholding best practices in corporate governance? Or, rather, does the way in which Treasury is managing our more than $200 billion stake in these four companies actually constitute a major step backward in corporate governance?

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There seems to be a pattern of favoritism shown to the financial services industry, and of "malign neglect," when addressing issues of manufacturing, job creation, and decent blue-collar wages. To my knowledge, today's and tomorrow's hearings are Congress's first attempt to create some measure of accountability over Treasury's handling of U.S. shareholder interests financed through TARP. What the Domestic Policy Subcommittee has found preliminarily is that too much of what the Treasury Department has done seems to be designed to evade and obfuscate accountability. That is simply unacceptable. We need to find another way forward. We need to find or establish new agencies, with clear lines of authority, to do the jobs that TARP was intended to do. Left up to Treasury on its own, those jobs are not getting done, and probably never will.

Mr. KUCINICH. I yield to the gentleman from Ohio, Mr. Jordan.

Mr. JORDAN. Thank you, Mr. Chairman. Let me thank you for holding today's hearing. I commend you for focusing the subcommittee's time on the vital question confronting the U.S. economy and the American taxpayers: Given the unfortunate road of the bailouts we have gone down, how should the Government manage its interest in private sector companies so as to ensure that the taxpayers are repaid as quickly as possible?

Unfortunately, TARP has become nothing more than a slush fund for the administration. The trend toward the nationalization of private sector firms did not stop with the banking sector. TARP has been used to secure Government ownership of automobile manufacturers, bail out insurance companies, and subsidize mortgage modifications, among other programs.

Now President Obama says that he intends to use repaid TARP funds for the so-called job creation programs, the second stimulus bill that is slated to be on the calendar today. This trend of using taxpayer money authorized for one purposes for a completely different purpose is troubling and, frankly, it must stop.

Many of us voted against TARP—I know the chairman and I both did—and our skepticism about the bailouts of private firms, I think, has been vindicated. We have seen numerous problems at the companies under the Government's control. For example, the committee has explored the flaws in the AIG trust agreement. This agreement, established by Mr. Geithner when he was president of the New York Fed, creates an unaccountable entity responsible for the management of the taxpayers' 80 percent interest in AIG. In addition, AIG has been hampered by the control of the Obama administration's so-called pay czar. Thirteen of AIG's top 25 employees have already left, and AIG's recently hired CEO and other top executives threaten to leave due to the pay czar's rulings.

These developments reveal another pitfall of the bailouts. While we don't like paying these employees' competitive salaries—we may not like that—the reality is that without talented employees, AIG will simply not be able to repay the American taxpayers.

The politicalization of General Motors and Chrysler has also demonstrated the problems created by the bailouts. In order to fully repay the taxpayers for the bailout of GM, the company will have to achieve a larger market capitalization than in any other time in its history. Making decisions that adhere to the wishes of the Obama administration's auto task force may benefit the unions or other special interest group, and satisfy the demands of powerful Members of Congress but will not lead to business success and taxpayer repayment.

We have an obligation, Mr. Chairman, to ask how and when we can escape from this mess. The American people have a right to know how this administration intends to manage taxpayer interest and all the firms that have been bailed out. We must ensure that the American people are paid back quickly and that as much of their money as possible is salvaged from this unprecedented and unwise intervention into the U.S. economy.

This is a hearing that takes us in the right direction in answering these important questions and, again, I want to thank you for your willingness to put this together and for our witnesses for being here this morning.

Mr. KUCINICH. I thank the gentleman.

The Chair recognizes Mr. Cummings of Maryland. You may proceed.

Mr. CUMMINGS. Thank you very much, Mr. Chairman.

Today's hearing highlights two issues for me: that the economy is far from out of the woods and we will not know the final cost of the financial crisis for some time.

Economists may herald the end of the technical recession, but I would hate to have to make that argument to the 10 percent of our Nation that is out of work, the millions of small businesses that still cannot access credit, or the millions of homeowners who find themselves in or near foreclosure. Further, the American taxpayers were made involuntary investors in several firms last year to provide the financial market the stability necessary to ensure they kept functioning in the midst of unprecedented circumstances. Given the dire straits for so many Americans, in return for their investments in AIG, GM, and other firms, they are owed not only our efforts to maximize the value of the equity they have acquired, but also a frank evaluation of the manner in which those investments are managed.

In the last month we have seen Bank of America, Citigroup, and Wells Fargo announce repayment of their TARP obligations. Further, the interim CEO at General Motors, Edward Whitaker, announced yesterday that the auto maker would repay its Government loans by June 2010. The news of repayments by these firms receiving extraordinary assistance is a sign that the financial sector has all but recovered. But it also raises three critical points that we must now address:

First, despite the public pronouncements by Bank of America, Citigroup, and Wells Faro that they are off the Government tab, the taxpayers still retain equity positions in some of the firms, highlighted by their 34 percent stake in Citigroup. As a result, we remain shareholders and must continue to diligently play a role in the future of the firm.

Second, some analysts have criticized the Treasury's decision to allow these firms to repay the Government, arguing that the firms have gotten out of executive pay restrictions while still presenting systemic risk. Therefore, it remains to be seen whether we have sacrificed economic stability for the benefit of a few Wall Street firms.

Third, and most importantly, despite propping up Wall Street, credit is not flowing to small- and medium-sized businesses, the firms that Nobel Prize winning economist Joe Stiglitz called the source of job creation. This begs the question: With or without Government equity positions, how can we get these firms to start lending again?

Mr. Chairman, once again I thank you for holding this hearing. Despite the technical end of the recession and shows of strength by Wall Street giants, the rest of America still desperately needs our help. I welcome the testimony of our distinguished witnesses and look forward to a frank and productive discussion, and, with that, Mr. Chairman, I yield back.

[The prepared statement of Hon. Elijah E. Cummings follows:]

COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM – DOMESTIC POLICY SUBCOMMITTEE

"The Government as Dominant Shareholder: How Should Taxpayers' Ownership Rights be Exercised?"

December 16 and 17 – 10:00 a.m.

Room 2154 Rayburn House Office Building

Statement of Congressman Elijah E. Cummings

Thank you, Mr. Chairman. Today's hearing highlights two issues for me: that the economy is far from out of the woods; and we will not know the *final* costs of the financial crisis for some time.

Economists may herald the end of the technical recession, but I'd hate to have to make that argument to the 10 percent of our nation that is out of work, the millions of small businesses that still cannot access credit, or the millions of homeowners who find themselves in, or near, foreclosure.

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Second, some analysts have criticized the Treasury's decision to allow these firms to repay the government, arguing that the firms have gotten out of executive pay restrictions, while still presenting systemic risk. **Therefore, it remains to be seen whether we have sacrificed economic stability for the benefit of a few Wall Street firms;**

Third, and most importantly, despite propping up Wall Street, credit is not flowing to small and medium-sized businesses – the firms that Nobel-winning economist Joseph Stiglitz calls "the source of job creation".

This begs the question – **with or without government equity positions – how can we get these firms to start lending again?**

Mr. Chairman, once again I thank you for holding this hearing; despite the technical end of the recession and shows of strength by Wall Street giants, the rest of America still desperately needs our help.

I welcome the testimony of our distinguished witnesses, and look forward to a frank and productive discussion.

With that, I yield back.

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Mr. KUCINICH. The gentleman yields back.

I want to thank the witnesses for being here. There is a vote that has been called. We are going to go vote, then we are going to come right back. It will probably be about 30 minutes. Sorry for the delay. We will move as expeditiously as possible. We will go right to your testimony as soon as we return. Thank you very much.

We stand in recess for 30 minutes.

[Recess.]

Mr. KUCINICH. The committee will come to order.

I want to thank all the witnesses for their patience. There are no additional opening statements and the subcommittee will receive testimony from the witnesses who are before us.

For those who are just joining us, this hearing is entitled, "The Government as Dominant Shareholder: How Should the Taxpayers' Ownership Rights be Exercised?"

I want to start by introducing our first panel.

Orice Williams Brown is Director of GAO's Financial Markets and Community Investment team. Her work is concentrated on securities and futures oversight, banking insurance and accounting policy. Currently, she leads GAO's work on the financial crisis, Treasury's troubled asset relief program and regulatory reform.

We also have here, as backup, A. Nicole Clowers, who is currently an Acting Director at GAO and leads GAO's work on surface transportation. She has led GAO's evaluations of the Federal Government's assistance to the auto industry, among other topics. Ms. Clowers will not be testifying, but will be available to answer questions.

Espen Eckbo. Professor Eckbo is the Tuck Centennial professor of finance and founding director of the Lindenauer Center for Corporate Governance at the Tuck School of Business at Dartmouth. He has written widely on a variety of corporate finance related topics, currently serves on the Advisory Board, Center for Leadership and Governance of America's Health Insurance Plans.

Professor J.W. Verret is senior scholar at the Mercatus Center and assistant professor of Law at George Mason University School of Law. He is an expert on corporate governance and has published in a number of legal journals.

Ms. Anne Simpson is senior portfolio manager for Global Equities at the California Public Employees' Retirement System, the largest public pension system in the United States, with approximately $200 billion under management. CalPERS provides retirement and health benefits to more than 1.6 million public employees, retirees, and their families, and more than 2500 employees. Previously, Ms. Simpson was the executive director of the International Corporate Governance Network, a body whose members are drawn from over 40 countries.

Alan Tonelson is a research fellow with the U.S. Business and Industry Council Educational Foundation, a Washington research organization studying U.S. economic technology and national security policy. Mr. Tonelson's articles on American politics, foreign policy, globalization, and technology policy have appeared in nearly every influential publication. He is a frequent commentator on radio and television.

The next person, Ralph Nader, needs no introduction, but I am going to introduce him anyway. Mr. Nader is an historic figure who, more than any other single person, has helped us to drive safer cars, eat healthier food, breathe better air, drink cleaner water, and work in safer environments. He has been doing this work for more than four decades. Mr. Nader's advocacy led to the passage of a National Traffic and Motor Vehicle Safety Act. He was instrumental in the creation of the Occupational Safety and Health Administration, the Environmental Protection Agency, the Consumer Product Safety Commission, the National Highway Transportation Safety Administration. By starting dozens of citizens groups, Ralph Nader has created an atmosphere of corporate and governmental accountability. He was named by The Atlantic as one of the 100 most influential figures in American history and by Time and Life Magazines as one of the most influential Americans of the 20th century.

When I was mayor of Cleveland, Ralph Nader helped me save a city's municipal electric system, something that the people of Cleveland remember and are always grateful for.

Finally, I want to introduce Robert Weissman, who is here accompanying Mr. Nader. Robert Weissman is president of Public Citizen, a nonprofit research, lobbying, and litigation public interest organization, with 150,000 members and supporters. He is coauthor of a forthcoming book, Corporate Ethics International, examining how government can leverage its investment in Citigroup to advance public policy objectives. Mr. Weissman will not be testifying, but will be available to answer questions.

I want to thank all of you for appearing before this subcommittee today.

Now, any person who is going to be testifying, including the people who are sitting in the second row, if you may answer a question, I am going to ask that all the witnesses, including those who just may be only answering questions, please rise and raise your right hands to be sworn.

[Witnesses sworn.]

Mr. KUCINICH. Thank you. You may be seated.

Let the record reflect that the witnesses answered in the affirmative.

Ms. Brown, you will be our first witness. We ask you to proceed for 5 minutes. Your entire statement will be included in the record. Once the light goes to red, we would like you to wrap it up so we can keep this moving. But whatever you submit to this committee will be in the record of the hearing, so you can just give us a summary.

You may proceed. Thank you.

STATEMENTS OF ORICE WILLIAMS BROWN, DIRECTOR, FINANCIAL MARKETS AND COMMUNITY INVESTMENT, GOVERNMENT ACCOUNTABILITY OFFICE, ACCOMPANIED BY A. NICOLE CLOWERS, ACTING DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE; PROFESSOR B. ESPEN ECKBO, TUCK SCHOOL OF BUSINESS AT DARTMOUTH; PROFESSOR J.W. VERRET, GEORGE MASON UNIVERSITY SCHOOL OF LAW; ANNE SIMPSON, SENIOR PORTFOLIO MANAGER FOR GLOBAL EQUITY, CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM; ALAN TONELSON, RESEARCH FELLOW, U.S. BUSINESS AND INDUSTRY COUNCIL EDUCATIONAL FOUNDATION; AND RALPH NADER, CONSUMER ADVOCATE, ACCOMPANIED BY ROBERT WEISSMAN, PRESIDENT, PUBLIC CITIZEN

STATEMENT OF ORICE WILLIAMS BROWN

Ms. BROWN. Mr. Chairman, Ranking Member Jordan, and members of the subcommittee, I am pleased to be here this morning to discuss the Government's role as shareholder in AIG, Citigroup, Chrysler, and General Motors. As requested, I will briefly touch on three broad issues.

First, from our previous work on Federal financial assistance to large firms and municipalities, we have identified three fundamental principles that provide a framework for considering and evaluating assistance: one, the problems confronting the industry need to be clearly defined, distinguishing between those that require an immediate financial response from those that are likely to require more time to resolve; two, determine whether the national interests will be best served through some type of government intervention or whether market forces and established legal procedures such as bankruptcy should be allowed to take their course, and, if Federal financial assistance is needed, clear objectives and goals for this assistance must be established; and, three, given the significant financial risk the Federal Government may assume on behalf of taxpayers, the structure created to administer any assistance should provide for appropriate mechanisms to protect taxpayers from excessive or unnecessary risks, such as concessions by all parties, controls over management, and compensation for risk. However, the recent crisis has posed unique challenges in adhering to this framework due to its sheer size and scope.

Next, I will touch on the Government's role as shareholder, which differed by type of institution and assistance provided. For example, the Federal Reserve Bank of New York, as a condition of the secured loans it provided to AIG, created a trust to hold the convertible preferred shares it acquired as a condition of this credit. Conversely, Treasury obtained Citi common shares after Citi requested that Treasury's initial investment be converted to common shares to strengthen Citi's capital structure. For Chrysler and GM, Treasury obtained an ownership interest in return for the financial assistance provided to help the companies restructure.

According to Treasury, it has developed several core principles to guide its oversight of its investments going forward. These included acting as a reluctant shareholder, not interfering in day-to-day management decisions, ensuring a strong board of directors, and exercising limited voting rights. Treasury has established conditions such as executive compensation requirements and voting on certain limited matters, and routinely monitored the companies' operations.

Finally, as part of our ongoing work with SIGTARP, we are reviewing three areas: the extent of Government involvement in corporate governance and operations of companies that have received exceptional assistance; how Treasury ensures that companies are complying with key covenants; and the Government's management of its investments and divestiture strategies.

One issue we are exploring is the advantages and disadvantages of a trust arrangement versus direct management. For example, directly managing the investments gives the Government greater control over these investments, but it also raises potential conflicts of interest when the Government is both a regulator and investor. GAO and SIGTARP are also reviewing the Treasury's plans for divesting, which are still evolving; and, except for Citi, Treasury has yet to develop exit strategies for unwinding the investments in others.

In closing, I would like to note that Treasury faces a number of competing and, at times, conflicting goals. For example, protecting the taxpayers' interests must be balanced against its plan to divest its ownership interests as soon as it is feasible. Consequently, Treasury may have to balance its desire to exit as quickly as possible with the need to maintain its equity interests long enough for the companies to demonstrate sufficient financial progress.

Second, establishing and monitoring benchmarks is an important part of Treasury's management of these investments because they inform the ultimate decision on when and how to sell each investment. Regularly monitoring the benchmarks will be important for Treasury to help ensure that taxpayer interests are maximized.

And, finally, while many agree that TARP funding has contributed to the stabilization of the economy, the significant sums of taxpayer dollars that were invested in a range of private companies warrant continued oversight and development of a prudent divestiture plan.

Thank you. My colleague, Nicky Clowers, who is knowledgeable about the assistance provided to the automobile industry, and I will answer any questions at the appropriate time.

[The prepared statement of Ms. Brown follows:]

United States Government Accountability Office

GAO

Testimony

Before the Subcommittee on Domestic Policy, Committee on Oversight and Government Reform, House of Representatives

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TROUBLED ASSET RELIEF PROGRAM

The U.S. Government Role as Shareholder in AIG, Citigroup, Chrysler, and General Motors and Preliminary Views on its Investment Management Activities

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GAO
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Highlights

Highlights of GAO-10-325T, a report to The Subcommittee on Domestic Policy, Oversight and Government Reform, House of Representatives

TROUBLED ASSET RELIEF PROGRAM

The U.S. Government Role as Shareholder in AIG, Citigroup, Chrysler, and General Motors and Preliminary Views on its Investment Management Activities

Why GAO Did This Study

The recent financial crisis resulted in a wide-ranging federal response that included infusing capital into several major corporations. The Troubled Asset Relief Program (TARP) has been the primary vehicle for most of these actions. As a result of actions and others, the government is a shareholder in the American International Group (AIG), Citigroup Inc. (Citi), Chrysler Group LLC (Chrysler), and General Motors Company (GM), among others. As market conditions have become less volatile, the government has been considering how best to manage these investments and ultimately divest them. This testimony discusses (1) the government's approach to past crisis and challenges unique to the current crisis; (2) the principles guiding the Department of the Treasury's implementation of its authorities and mechanisms for managing its investments; and (3) preliminary views from GAO's ongoing work with the Special Inspector General for TARP on the federal government's monitoring and management of its investments. This statement builds on GAO's work since the 1970s on providing government assistance to large corporations and more recent work on oversight of the assistance and investments provided under TARP.

In its November 2009 report, GAO recommended that Treasury ensure it has expertise needed to monitor its investment in Chrysler and GM and that it has a plan for evaluating the optimal method and timing for divesting this equity.

View GAO-10-325Tor key components.
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What GAO Found

Looking at the government's role in providing assistance to large companies dating back to the 1970s, we have identified principles that serve as a framework for such assistance; including identifying and defining the problem, setting clear goals and objectives that reflect the national interests, and protecting the government's interests. These actions have been important in the past, but the current financial crisis has unique challenges, including the sheer size and scope of the crisis, that have affected the government's actions. As a result, the government's response has involved actions on the national and international levels and oversight and monitoring activities tailored to specific institutions and companies. We have also reported on considerations important for Treasury's approach to monitoring its investments in the companies that received assistance.

The administration developed several guiding principles for managing its ownership interest in AIG, Citigroup, Chrysler, and GM. It does not intend to own equity stakes in companies on a long-term basis and plans to exit from them as soon as possible. It reserves the right to set up-front conditions to protect taxpayers, promote financial stability, and encourage growth. It intends to manage its ownership stake in institutions and companies in a hands-off, commercial manner and to vote only on core governance issues, such as the selection of a company's board of directors. Treasury has also required companies and institutions that receive assistance to report on their use of funds and has imposed restrictions on dividends and repurchases, lobbying expenses, and executive compensation, among other things. As part of its oversight efforts, it also monitors a number of performance benchmarks. Chrysler and GM will submit detailed financial and operational reports to Treasury, while an asset management firm will monitor the data on Citi, including credit spreads, liquidity and capital adequacy. To monitor its investment in AIG, Treasury coordinates with the Federal Reserve Bank of New York in tracking liquidity and cash reports, among other indicators.

Treasury directly manages its investment in Citi, Chrysler, and GM, but the common equity investment in AIG, obtained with the assistance of the Federal Reserve, is managed through a trust arrangement. Each of these management strategies has advantages and disadvantages. Directly managing the investment affords the government the greatest amount of control but could create a conflict of interest if the government both regulates and has an ownership share in the institutions and could expose the government to external pressures. A trust structure, which places the government's interest with a third party, could mitigate any potential conflict-of-interest risk and reduce external pressures. But a trust structure would largely remove accountability from the government for managing the investment. GAO is reviewing Treasury's plans for managing and divesting itself of its investments, but the plans are still evolving, and, except for Citi, Treasury has yet to develop exit strategies for unwinding the investments.

Chairman Kucinich, Ranking Member Jordan, and Members of the Subcommittee:

We are pleased to be here to discuss the federal government's role as shareholder in American International Group (AIG), Citigroup Inc. (Citi), Chrysler Group LLC (Chrysler), and General Motors Company (GM). As you know, the recent financial crisis resulted in a wide-ranging federal response that included providing large infusions of capital into the financial system and automotive industry, sometimes in the form of common equity investments. The Troubled Asset Relief Program (TARP), which was created under the Emergency Economic Stabilization Act of 2008 (the act), has been the primary vehicle for making these equity investments.[1] As market conditions have become less volatile, Treasury is working to determine how best to manage these investments and ultimately divest itself of them.

The government has purchased equities in hundreds of financial institutions and other companies under TARP. As requested, our statement today focuses on four of them: AIG, Citi, Chrysler, and GM. Specifically, we will address three broad issues relating to the government's ownership interest:

- the historical context of large-scale federal financial assistance programs and the challenges specific to the current crisis;
- the U.S. Department of the Treasury's (Treasury) implementation of its authorities under the act and management of its investments in each company; and
- preliminary observations on the federal government's role as shareholder from our ongoing work with the Special Inspector General for TARP (SIGTARP).

This statement builds primarily on our work since the 1970s on providing government assistance to large corporations; our recent work on the oversight of the assistance and investments provided under TARP, including the government's investments in AIG, Citi, Chrysler, and GM; and our ongoing work on the role of the federal government as shareholder

[1]Pub. L. No. 110-343, Div. A, 122 Stat. 3765 (Oct. 3, 2008), *codified in part, as amended, at* 12 U.S.C. §§ 5201-5261.

that we have undertaken with SIGTARP.[2] As part of our ongoing work, we have reviewed relevant laws, regulations, guidance, and documents and interviewed relevant federal and company officials. We conducted our ongoing work from August 2009 through December 2009 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Summary

Using our previous work on federal financial assistance to large firms and municipalities, we have identified three fundamental principles that provide a framework for considering and evaluating such assistance. First, the problems confronting the industry or institution need to be clearly defined and those that require an immediate financial response differentiated from those that are likely to require more time to resolve. Second, the government needs to determine whether the national interest will be best served through some type of government intervention or whether market forces and established legal procedures, such as bankruptcy reorganization, should be allowed to take their course. If the federal government decides that federal financial assistance is warranted, it must set clear objectives and goals for this assistance. Third, given the significant financial risk the federal government may assume on behalf of taxpayers, the structure created to administer any assistance must have appropriate mechanisms to protect them from excessive or unnecessary risk. These mechanisms may include concessions by all parties, controls over management, compensation for risk, and a strong independent board or other entity managing or overseeing the assistance. We also have

[2]See GAO, *Guidelines for Rescuing Large Failing Firms and Municipalities*, GAO/GGD-84-34 (Washington, D.C.: Mar. 29, 1984); *Auto Industry: A Framework for Considering Federal Financial Assistance*, GAO-09-242T (Washington, D.C.: Dec. 4, 2008); *Auto Industry: A Framework for Considering Federal Financial Assistance*, GAO-09-247T (Washington, D.C.: Dec. 5, 2008); *Auto Industry: Summary of Government Efforts and Automakers' Restructuring to Date*, GAO-09-553 (Washington, D.C.: Apr. 23, 2009); *Troubled Asset Relief Program: Status of Government Assistance Provided to AIG*, GAO-09-975 (Washington, D.C.: Sept. 21, 2009); *Troubled Asset Relief Program: One Year Later, Actions Are Needed to Address Remaining Transparency and Accountability Challenges*, GAO-10-16 (Washington, D.C.: Oct. 8, 2009); and *Troubled Asset Relief Program: Continued Stewardship Needed as Treasury Develops Strategies for Monitoring and Divesting Financial Interests in Chrysler and GM*, GAO-10-151 (Washington, D.C.: Nov. 2, 2009).

previously identified considerations that are important for Treasury's approach to monitoring its investments in some of the companies that have received exceptional assistance. These considerations include retaining necessary expertise; monitoring and communicating company, industry, and economic indicators; determining the optimal time and method to divest; and managing the investments in a commercial manner. While Treasury adhered to certain aspects of these principles and considerations, it has been challenged in meeting others due to the widespread and evolving nature of the crisis.

Moreover, the government's role as a shareholder differed across the institutions that received federal assistance, largely because of differences in the types of institutions and the nature of the assistance they received. For example, the Federal Reserve Bank of New York (FRBNY) as a condition of secured loans it provided to AIG, created a trust to hold the convertible preferred shares it purchased.[3] Conversely, Treasury later obtained common shares in Citi after Citi requested that Treasury's initial investment in preferred shares be converted to common shares to strengthen the bank's capital structure. Treasury obtained an ownership interest in Chrysler and GM during their bankruptcy and restructuring. To guide its oversight of these investments going forward, the administration developed several core principles. These include (1) acting as a reluctant shareholder or not owning equity stakes in companies any longer than necessary; (2) not interfering in the day-to-day management decisions of a company in which it is an investor; (3) ensuring a strong board of directors; and (4) exercising limited voting rights. Therefore, while Treasury has not been involved in the day-to-day operations of these companies as a result of its ownership stake, it has established conditions for receiving assistance and routinely monitored the companies' operations—for example, setting limits on executive compensation and voting on certain limited matters.

As part of our ongoing work with SIGTARP, we are reviewing the extent of government involvement in the corporate governance and operations of companies that have received exceptional assistance, the mechanisms used to ensure that companies are complying with key covenants, and its management of the investments and divestiture strategies. According to Treasury officials, direct investments are managed at three levels:

[3]Under TARP, Treasury also purchased preferred shares and acquired warrants as part of its investment in AIG.

individually at the institution and program levels and collectively at the portfolio level. While Treasury does not manage the day-to-day activities of the companies by virtue of its ownership interest, it does monitor their financial condition, with the goal of achieving financial viability. While the AIG convertible preferred shares acquired by FRBNY is held in trust, the Office of Financial Stability (OFS) manages common equity investments in Citi, Chrysler, and GM. Each of these strategies has advantages and disadvantages that must be weighed in deciding which to adopt. GAO is currently reviewing Treasury's plans for divesting itself of the investments in the four companies, but the plans are still evolving, and, except for Citi, Treasury has yet to develop exit strategies for unwinding the investments. Given the complexity and importance of this decision, we recommended in November that Treasury develop criteria for evaluating the optimal method and timing for divesting its equity stake. In response to this recommendation, Treasury said that it will continue to monitor and evaluate the performance of Chrysler and GM with a view toward determining the appropriate method and timing for divesting Treasury's interest in the auto companies.[4]

Background

The act's purposes are to provide Treasury with the authorities and facilities to restore liquidity and stability to the U.S. financial system while protecting taxpayers, including the value of their homes, college funds, retirement accounts, and life savings. The act also mandated that Treasury's efforts help preserve homeownership and promote jobs and economic growth, maximize overall returns to taxpayers, and provide public accountability for the exercise of its authority. The act created OFS within Treasury to administer TARP, which in turn created a number of programs designed to address various aspects of the unfolding financial crisis. Some of those programs resulted in the government having an ownership interest in several companies.

- The Capital Purchase Program (CPP) is the largest program, with several hundred participants, including Citi. Created in October 2008, it aimed to stabilize the financial system by providing capital to viable banks through the purchase of preferred shares and subordinated debentures. In addition to the value of the assets purchased, these transactions require that the fixed dividends be paid on the preferred shares, that the debentures accrue interest, and that all purchases are accompanied by a warrant to

[4]GAO-10-151.

purchase either common stock or additional senior debt instruments. Citi is one of several hundred participants in this program.

- The Targeted Investment Program (TIP) was created in November 2008 to foster market stability and thus strengthen the economy by investing in institutions that Treasury deemed critical to the functioning of the financial system. In addition to the value of the assets purchased, transactions under this program also required that the fixed dividends be paid on the preferred shares, and that all purchases be accompanied by a warrant to purchase common stock or additional senior debt instruments. TIP provided assistance to two institutions, which Treasury selected on a case-by-case basis.[5] Citi is the only remaining participant but has recently announced plans to repay the Treasury.

- The Asset Guarantee Program (AGP) was created in November 2008 to provide federal government assurances for assets held by financial institutions that were deemed critical to the functioning of the U.S. financial system. Citigroup is the only institution participating in AGP. As a condition of participation, Citigroup issued preferred shares to the Treasury and the Federal Deposit Insurance Corporation (FDIC) and warrants to Treasury in exchange for their participation, along with the Federal Reserve Bank of New York (FRBNY) $301 billion of loss protection on a specified pool of Citigroup assets.

- The Systemically Significant Failing Institutions Program was created in November 2008 to help avoid disruptions to financial markets from an institutional failure that Treasury determined would have broad ramifications for other institutions and market activities. AIG has been the only participant in this program and was targeted because of its close ties to other institutions. Assistance provided under this program is in addition to the assistance provided by FRBNY. Under this program, Treasury owns preferred shares and warrants. Treasury now refers to this program as the AIG, Inc. Investment Program.

- The Automotive Industry Financing Program (AIFP) was created in December 2008 to prevent a significant disruption of the U.S. automotive industry. Treasury has determined that such a disruption would pose a systemic risk to financial market stability and have a negative effect on the U.S. economy. The program requires participating institutions to

[5] On December 9, 2009, Bank of America, the other participant in this program, repurchased its preferred shares held by Treasury. As of this date, Bank of America has not exercised its right to buy back the warrants held by Treasury.

implement plans to show how they intend to achieve long-term viability. Chrysler and GM participate in AIFP.

The Federal Response to the Current Financial Crisis Builds on Responses to Past Crises but Faces Unique Challenges

The government has a long history of intervening in markets during times of crisis. From the Great Depression to the Savings and Loan crisis of the 1980s, the government has shown a willingness to intervene in private markets when national interests are at stake. It has undertaken financial assistance efforts on a large scale, including to private companies and municipalities—for example, Congress created separate financial assistance programs totaling over $12 billion to stabilize Conrail, Lockheed, Chrysler, and the New York City government during the 1970s. Most recently, in response to the most severe financial crisis since the Great Depression, Congress authorized Treasury to buy or guarantee up to $700 billion of the "troubled assets" that were deemed to be at the heart of the crisis. The past and current administrations have used this funding to help stabilize the financial system and domestic automotive industry. While TARP was created to help address the crisis, the Treasury, Federal Reserve Board, FRBNY, and FDIC have also taken a number of steps to address the unfolding crisis.

Looking at the government's role in providing assistance to large companies dating back to the 1970s, we have identified three fundamental principles that can serve as a framework for large-scale federal financial assistance efforts and that still apply today. These principles are identifying and defining the problem, determining the national interests and setting clear goals and objectives that reflect them, and protecting the government's interests. The federal response to the current financial crisis generally builds on these principles.

Identifying and defining the problem includes separating out those issues that require an immediate response from structural challenges that will take more time to resolve. For example, in the case of AIFP, Treasury identified as a problem of national interest the financial condition of the domestic automakers and its potential to affect financial market stability and the economy at large. In determining what actions to take to address this problem, Treasury concluded that Chrysler's and GM's lack of liquidity needed immediate attention and provided short-term bridge loans in December 2008. Treasury also required Chrysler and GM to prepare restructuring plans that outlined how the automakers intended to achieve long-term financial viability and provided financial assistance to help them through the restructuring process.

Determining national interests and setting clear goals and objectives that reflect them requires deciding whether a legislative solution or other government intervention best serves the national interest. For example, during the recent crisis Congress determined that government action was needed and Treasury determined that the benefits of intervening to support what were termed "systemically significant" institutions far exceeded the costs of letting these firms fail. As we have also seen during the current crisis, companies receiving assistance should not remain under federal protection indefinitely, and as we discuss later, Treasury has been clear that it wants to divest as soon as practicable.

Because large-scale financial assistance programs pose significant financial risk to the federal government, they necessarily must include mechanisms to protect taxpayers.[6] Four actions have been used to alleviate these risks in financial assistance programs:[7]

- Concessions from others with a stake in the outcome—for example, from management, labor, and creditors—in order to ensure cooperation and flexibility in securing a successful outcome. For example, as a condition of receiving federal financial assistance, TARP recipients had to agree to limits on executive compensation and GM and Chrysler had to use their "best efforts" to reduce their workers' compensation to what workers at foreign automakers receive.
- Controls over management, including the authority to approve financial and operating plans and new major contracts, so that any restructuring plans have realistic objectives and hold management accountable for achieving results. Under AIFP, Chrysler and GM were required to develop restructuring plans that outlined their path to financial viability. In February 2009, the administration rejected both companies' restructuring plans, and required them to develop more aggressive ones. The administration subsequently approved Chrysler's and GM's revised plans, which included restructuring the companies through the bankruptcy code.

[6] GAO-01-1163T and GAO-09-975.

[7] GAO/GGD-84-34.

- Adequate collateral that, to the extent feasible, places the government in a first-lien position in order to recoup maximum amounts of taxpayer funds. While Treasury was not able to fully achieve this goal given the highly leveraged nature of Chrysler and GM, FRBNY was able to secure collateral on its loans to AIG.[8]

- Compensation for risk through fees and/or equity participation, a mechanism that is particularly important when programs succeed in restoring recipients' financial and operational health. In return for the $62 billion in restructuring loans to Chrysler and GM, Treasury received 9.85 percent equity in Chrysler, 60.8 percent equity and $2.1 billion in preferred stock in GM, and $13.8 billion in debt obligations between the two companies.

These actions have been important in previous financial crises, but the shear size and scope of the current crisis has presented some unique challenges that affected the government's actions. For example, as discussed later, as Treasury attempted to identify program goals and determine, which ones would be in the national interest, its goals were broad and often conflicted. Likewise, while steps were taken to protect taxpayer interests, some actions resulted in increased taxpayer exposure. For example, preferred shares initially held in Citi offered more protection to taxpayers than the common shares into which they were converted. However, the conversion strengthened Citi's capital structure. In the next section, we discuss the federal government's actions in the current crisis that resulted in it having an ownership interest and provide information on how the government is managing its interests.

In addition to these principles, we have also reported on important considerations for Treasury in monitoring and selling its ownership interest in Chrysler and GM, which may also serve as useful guidelines for its investments in AIG and Citi as well. The considerations that we identified, based on interviews with financial experts and others, include the following:

- **Retain necessary expertise**. Experts stressed that it is critical for Treasury to employ or contract with individuals with experience managing and selling equity in private companies. Individuals with investment, equity, and capital market backgrounds should be available to provide advice and expertise on the oversight and sale of Treasury's equity.

[8]FRBNY provided secured loans to AIG as part of its revolving credit facility.

- **Monitor and communicate company, industry, and economic indicators.** All of the experts we spoke with emphasized the importance of monitoring company-specific indicators and broader economic indicators such as interest rates and consumer spending. Monitoring these indicators allows investors, including Treasury, to determine how well the companies, and in turn the investment, are performing in relation to the rest of the industry. It also allows an investor to determine how receptive the market would be to an equity sale, something that contributes to the price at which the investor can sell.

- **To the extent possible, determine the optimal time and method to divest.** One of the key components of an exit strategy is determining how and when to sell the investment. Given the many different ways to dispose of equity—through public sales, private negotiated sales, all at once, or in batches—experts noted that the seller's needs should inform decisions on which approach is most appropriate. Experts noted that a convergence of factors related both to financial markets and to the company itself create an ideal window for an IPO; this window can quickly open and close and cannot easily be predicted. This requires constant monitoring of up-to-date company, industry, and economic indicators when an investor is considering when and how to sell.

- **Manage investments in a commercial manner.** Experts emphasized the importance of Treasury resisting external pressures to focus on public policy goals over focusing on its role as a commercial investor. For example, some experts said that Treasury should not let public policy goals such as job retention interfere with its goals of maximizing its return on investment. Nevertheless, one expert suggested that Treasury should consider public policy goals and include the value of jobs saved and other economic benefits from its investment when calculating its return, since these goals, though not important to a private investor, are critical to the economy.

Treasury Has Developed Core Principles to Guide the Management of Its Varied Ownership Interests

Treasury ownership interests differ across the institutions that have received federal assistance, largely because of differences in the types of institutions and the nature of the assistance they received. Initially, Treasury had proposed purchasing assets from financial institutions as a way of providing liquidity to the financial system. Ultimately, however, Treasury determined that providing capital infusions would be the fastest and most effective way to address the initial phase of the crisis. As the downturn deepened, Treasury provided exceptional assistance to a number of institutions including AIG, Citi, Chrysler, and GM.[9] In each case, it had to decide on the type of assistance to provide and the conditions that would be attached. In several cases, the assistance resulted in the government obtaining an ownership interest that must be effectively managed.[10]

First, Treasury has committed almost $70 billion of TARP funds for the purchase of AIG preferred stock, $43.2 billion of which had been invested as of September 30, 2009. The remainder may be invested at AIG's request. As noted earlier, FRBNY has also provided secured loans to AIG. In consideration of the loans, AIG deposited into a trust convertible preferred shares representing approximately 77.9 percent of the current voting power of the AIG common shares after receiving a nominal fee ($500,000) paid by FRBNY. The trust is managed by three independent trustees. The U.S. Treasury (i.e., the general fund), not the Department of the Treasury, is the sole beneficiary of the trust proceeds.[11]

Second, Treasury purchased $25 billion in preferred stock from Citi under CPP and an additional $20 billion under TIP. Each of these preferred stock acquisitions was also accompanied by a warrant to purchase Citi common stock. Treasury has also received $4.03 billion in Citi preferred stock

[9]The Targeted Investment Program, the Systemically Significant Failing Institutions Program, and the Automotive Industry Financing Program are considered exceptional assistance programs. Companies that have received exceptional assistance included AIG, Bank of America, Citi, Chrysler, GM, and GMAC.

[10]While the Office of Financial Stability's (OFS) financial statements reflect activities involved in implementing TARP, including providing resources to various entities to help stabilize the financial markets, the statements do not include the assets, liabilities, or results of operations of commercial entities in which OFS has a significant equity interest. According to OFS officials, OFS's investments were not made to engage in the business activities of the respective entities.

[11]Under TARP, Treasury also holds AIG preferred shares and warrants. For the purposes of this statement, we will focus on the shares held in trust.

through AGP as a premium for Treasury's participation in a guarantee against losses on a defined pool of $301 billion of assets owned by Citi and its affiliates.[12] As part of a series of transactions designed to strengthen Citi's capital, Treasury exchanged all its preferred shares in Citi for a combination of common shares and trust-preferred securities.[13] This exchange, which was completed in July 2009, gave Treasury an almost 34 percent common equity interest in the bank holding company.

Finally, under AIFP Treasury owns 9.85 percent of the common equity in the restructured Chrysler and 60.8 percent of the common equity, plus $2.1 billion in preferred stock in the restructured GM. Treasury's ownership interest in the automakers was provided in exchange for the assistance Treasury provided before and during their restructurings. The restructured Chrysler is to repay Treasury $7.1 billion of the assistance as a term loan, and the restructured GM is to repay $7.1 billion of the assistance as a term loan.

Four Core Principles Guide Treasury's Management of Its Ownership Interest

Recognizing the challenges associated with the federal government having an ownership interest in the private market, the administration developed several guiding principles for managing its TARP investments. According to Treasury, it has developed core principles that will guide its equity investments going forward, which are discussed in detail in OFS's financial report.[14]

- **Acting as a reluctant shareholder.** The government has no desire to own equity stakes in companies any longer than necessary and will seek to

[12]Treasury's exposure under the guarantee is limited to $5 billion. The Federal Deposit Insurance Corporation (FDIC) and the Federal Reserve Bank of New York are also participating in this guarantee. FDIC also received preferred shares. As part of an exchange offering, both Treasury's and FDIC's shares were converted to trust preferred shares.

[13]Initially, Citigroup requested that Treasury exchange its preferred shares for common shares to strength its capital structure and increase its tangible common equity. Following the Federal Reserve Board stress test conducted as part of OFS's Financial Stability Plan, Citi expanded its planned exchange of preferred securities and trust preferred securities for common stock from $27.5 billon to $33 billion. The stress test found that Citigroup would need an additional $5.5 billion in tier 1 common capital, for a total of $58.1 billion, to ensure adequate capital for the more adverse economic scenario.

[14]*Office of Financial Stability: Agency Financial Report Fiscal Year 2009*, Department of the Treasury.

dispose of its ownership interests as soon as it is practical to do so—that is, when the companies are viable and profitable and can contribute to the economy without government involvement.

- **Not interfering in the day-to-day management decisions of a company in which it is an investor**. In exceptional cases, the government may determine that ongoing assistance is necessary but will reserve the right to set upfront conditions to protect taxpayers, promote financial stability, and encourage growth. When necessary, these conditions may include restructurings similar to that now under way at GM and changes to help ensure a strong board of directors.
- **Ensuring a strong board of directors.** After any up-front conditions are in place, the government will protect the taxpayers' investment by managing its ownership stake in a hands-off, commercial manner. Any changes to boards of directors will be designed to help ensure that they select management with a sound long-term vision for restoring their companies to profitability and ending the need for government support as quickly as possible. The government will not interfere with or exert control over day-to-day company operations, and no government employees will serve on the boards or be employed by these companies.
- **Exercising limited voting rights.** As a common shareholder, the government will vote on only core governance issues, including the selection of a company's board of directors and major corporate events or transactions. While protecting taxpayer resources, the government has said that it intends to be extremely disciplined as to how it uses even these limited rights.

Treasury's investments have generally been in the form of nonvoting securities. For example, the preferred shares that Treasury holds in financial institutions under CPP do not have voting rights except in certain limited circumstances, such as amendments to the charter of the company or in the event that dividends are not paid for several quarters (in which case Treasury has the right to elect two directors to the board). However, the agreements that govern Treasury's common ownership interest expressly state that Treasury does not have the right to take part in the management or operation of the company other than voting on certain issues, which are summarized in the following table (table 1).

Table 1: Treasury's Governance Principles for Exercising Its Voting Power

Potential Voting Matter	Citi	Chrysler	GM[a]
Election or removal of directors	x	x	x[b]
Certain major corporate transactions such as mergers, sales of substantially all assets, and dissolution	x	x	x
Issuances of equity securities that entitle shareholders to vote	x	x	x
Amendments to the charter or bylaws	x	x	x
Matters in which Treasury's vote is necessary for the stockholders to take action, in which case the shares will be voted in the same proportion (for, against, or abstain) as all other shares of the company's stock are voted.	x	x	x
All other matters requiring a vote	x[c]		

Source: GAO summary of Monthly Section 105(a) Report, OFS, Treasury, December 2009.

[a]Before GM's expected initial public offering (IPO), Treasury will vote its shares as it determines, provided that it votes in favor of directors nominated by the GM Voluntary Employee Benefit Association (VEBA) or the government of Canada, the other shareholders.

[b]The election of directors, provided that Treasury votes in favor of individuals nominated through a certain predesignated process, and individuals nominated by the Voluntary Employee Benefit Association (VEBA).

[c]On all other matters, Treasury will vote its shares in the same proportion (for, against or abstain) as all other shareholders.

The AIG trust created by FRBNY owns shares that carry 77.9 percent of the voting rights of the common stock. FRBNY has appointed three independent trustees who have the power to vote and dispose of the stock with prior FRBNY approval and after consultation with Treasury. The trust agreement provides that the trustees cannot be employees of Treasury or FRBNY, and Treasury does not control the trust or direct the actions of the trustees. Treasury also owns AIG preferred stock, which does not have voting rights except in certain limited circumstances (such as amendments to the charter) or in the event dividends are not paid for four quarters, in which case Treasury has the right to elect additional directors to the board.[15]

[15]AIG has not made any dividend payments since receiving assistance. After four missed dividend payments OFS may appoint to the AIG board of directors the greater of two members or 20 percent of the total number of directors of the company.

Treasury Imposed a Number of Conditions That These Companies Must Meet

As a condition of receiving exceptional assistance, Treasury placed certain conditions on these companies. Specifically, the agreements with the companies impose certain reporting requirements and include provisions such as restrictions on dividends and repurchases, lobbying expenses, and executive compensation. The companies were also required to establish internal controls with respect to compliance with applicable restrictions and provide reports certifying their compliance.

While all four institutions were subject to internal control requirements, as set forth in the credit and other agreements that outline Treasury's and the companies' roles and responsibilities, Chrysler and GM have agreed to (1) produce a portion of their vehicles in the United States; (2) report to Treasury on events related to their pension plans; and (3) report to Treasury monthly and quarterly financial, managerial, and operating information. More specifically, Chrysler must either manufacture 40 percent of its U.S. sales volume in the United States, or its U.S. production volume must be at least 90 percent of its 2008 U.S. production volume. In addition, Chrysler's shareholders, including Treasury, have agreed that Fiat's equity stake in Chrysler will increase if Chrysler meets benchmarks such as producing a vehicle that achieves a fuel economy of 40 miles per gallon or producing a new engine in the United States.[16] GM must use its commercially reasonable best efforts to ensure that the volume of manufacturing conducted in the U.S. is consistent with at least 90 percent of the level envisioned in GM's business plan. Treasury has stated that it plans to manage its equity interests in Chrysler and GM in a hands-off manner and does not plan to manage its interests to achieve social policy goals. But Treasury officials also noted that some requirements reflect the administration's views on responsibly utilizing taxpayer resources for these companies as well as efforts to protect Treasury's financial interests as a creditor and equity owner.

As a condition of receiving exceptional assistance, all four institutions must also adhere to the executive compensation and corporate governance rules established under the act, as amended by the American Recovery and Reinvestment Act of 2009 (ARRA), which limited

[16]Current equity ownership in New Chrysler is as follows: the Chrysler Voluntary Employee Benefit Association (67.7 percent), Fiat (20 percent), Treasury (9.85 percent) and the Government of Canada (2.5 percent).

compensation to the highest paid executives.[17] Treasury also created the Office of the Special Master (Special Master) to carry out this requirement.

The Special Master generally rejected the companies' initial proposals for compensating the top 25 executives and approved a modified set of compensation structures with the following features:

- generally limited salaries to no greater than $500,000, with the remainder of compensation in equity;
- most compensation paid as vested "stock salary," which executives must hold until 2011, after which it can be transferred by executives in three equal annual installments (subject to acceleration of the company's repayment of TARP funds);
- annual incentive compensation payable in "long-term restricted stock," which requires three years of service, in amounts determined based on objective performance criteria;
- actual payment of the restricted stock is subject to the company's repayment of TARP funds (in 25 percent installments);
- $25,000 limit on perquisites and "other" compensation, absent special justification; and
- no further accruals or company contributions to executive pension plans.

The Special Master also made determinations about the compensation structures (but not individual salaries) of these companies' next 75 most highly compensated employees. He rejected the proposed compensation structures for the companies subject to review, so the companies must

[17] Section 111 of EESA, as amended by the American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, Div. B, Title VII, 123 Stat. 115, 516-520 (2009), codified at 12 U.S.C § 5221, prescribes certain standards for executive compensation and corporate governance for recipients of financial assistance under TARP. Treasury published an interim final rule setting forth the applicable compensation and corporate governance standards (74 Fed. Reg. 28,394, June 15, 2009, codified at 31 C.F.R. Part 30).

make additional changes to their compensation structures and resubmit them for approval.[18]

Treasury Monitors a Number of Performance Benchmarks as Part of Its Oversight Effort

One of the principles guiding the government's management of its investments in the companies includes monitoring and communicating information from company, industry, and economic indicators. According to OFS, the asset management approach is designed to implement these guiding principles. It attempts to protect taxpayer investments and promote stability by evaluating systemic and individual risk through standardized reporting and proactive monitoring and ensuring adherence to the act and compliance with contractual agreements.

Treasury has developed a number of performance benchmarks that it routinely monitors. For example, as we reported in November, Treasury will monitor financial and operational data such as cash flow, market share, and market conditions and use this information to determine the optimal time and method of sale.[19] Similarly, for AIG and Citi, Treasury has been monitoring liquidity, capital, profits/losses, loss reserves, and credit ratings. Treasury has hired an outside asset management firm to monitor its investment in Citigroup. The valuation process includes tracking market conditions on a daily basis and collecting data on indicators such as credit spreads, bond and equity prices, liquidity, and capital adequacy. To monitor its investment in AIG, Treasury also coordinates with FRBNY in tracking liquidity, weekly cash forecasts and daily cash reports, among other indicators.

[18]The determinations cover four companies: AIG, Citigroup, GM, and GMAC. Chrysler and Chrysler Financial were exempt from the Special Master's review during this round because total pay for their executives did not exceed the $500,000 "safe harbor" limitation in Treasury's compensation regulations. Because Bank of America repaid its TARP obligations on December 9, 2009, its 26 - 100 most highly compensated employees plus additional executive officers are not subject to the Special Master's review.

[19]GAO-10-151.

Our Ongoing Work Suggests That Different Management Strategies for Investments Have Advantages and Disadvantages and That Divestment Strategies Are Evolving

As part of our ongoing work with SIGTARP, we are reviewing the extent of government involvement in the corporate governance and operations of companies that have received exceptional assistance, Treasury's mechanisms for ensuring that companies are complying with key covenants, and the government's management of the investment and its divestiture strategies.[20] Today, we will highlight some of our preliminary observations from this review including observations about the advantages and disadvantages of managing these investments directly or though a trust arrangement.

According to OFS, investments are managed on the individual (institutional and program) and portfolio levels. As previously discussed, the government generally does not manage the day-to-day activities of the companies. Rather, Treasury monitors the financial condition of the companies with the goal of achieving financial viability. In conducting the portfolio management activities, OFS employs a mix of professional staff and external asset managers. According to OFS, these external asset managers provide periodic market-specific information such as market prices and valuations, as well as detailed credit analysis using public information. A portfolio management leadership team oversees the work of asset management employees organized by program basis, so that investment and asset managers may follow individual investments. OFS uses this strategy to manage its investment in Citi, Chrysler, and GM, and the independent trustees of the AIG trust manage the government's common equity interest in AIG.[21] According to officials we interviewed, each structure—managing the investment directly or through a trust—has advantages and disadvantages.

Directly managing the investments offers two significant advantages. First, it affords the government the greatest amount of control over the investment. Second, having direct control over investments better enables the government to manage them as a single portfolio. However, such a structure also has disadvantages. For example, having the government both regulate and hold an ownership interest in an institution or company could create a conflict of interest and potentially expose the government to external pressures. Treasury officials have noted that they have been

[20] Companies that have received exceptional assistance include AIG, Bank of America, Citi, Chrysler, GM, and GMAC. We also include Fannie Mae and Freddie Mac in our review.

[21] OFS also manages its preferred investments and warrants in AIG but for purposes of this statement, we focus on the government's interest in AIG common shares.

contacted by members of Congress expressing concern about dealership closings, and as long as Treasury maintains ownership interests in Chrysler and GM, it will likely be pressured to influence the companies' business decisions.[22] Further, a direct investment requires that the government have staff with the requisite skills. For instance, as long as Treasury maintains direct control of its ownership interest in Citi, Chrysler, and GM, among others, it must have staff or hire contractors with the necessary expertise in these specific types of companies. In our previous work, we questioned whether Treasury would be able to retain the needed expertise to assess the financial condition of the auto companies and develop strategies to divest the government's interests given the substantial decline in the number of staff and lack of dedicated staff providing oversight of its investments in the automakers. We recommended that Treasury take action to address this concern.[23]

In contrast, a trust structure puts the government's interest in the hands of an independent third party. While the Treasury has interpreted the act as currently prohibiting placing TARP assets in a trust structure, FRBNY was able to create a trust to manage the government's ownership interest in AIG.[24] One potential advantage of a trust structure is that it helps to avoid any potential conflicts of interest that could stem from the government's having both regulatory functions and its ownership interests in a company. It also mitigates any perception that actions taken with respect to TARP recipients were politically motivated or that any actions taken by Treasury were based on any "inside information" received from the regulators. Conversely, a trust structure largely removes control of the investment from the government. Finally, the trustees would also require specialized staff or contractors, would need to develop their own mechanisms to monitor the investments and analyze the data needed to assess the financial condition of the institutions or companies and decide when to divest.

[22]GAO, GAO-10-151.

[23]GAO, GAO-10-151.

[24]EESA § 101(c) (4) authorizes the secretary to take all necessary actions to carry out its authorities under ESSA, including, without limitation, "establishing vehicles that are authorized , subject to the supervision of the Secretary, to purchase, hold and sell troubled assets and issue obligations." Under a traditional trust structure, however, the assets of the trust would be under the supervision of trustees, not Treasury.

We are reviewing Treasury's plans for divesting its investments and so far, have found that the strategy is evolving. Although Treasury has stated that it intends to sell the federal government's ownership interest as soon as doing so is practical, it has yet to develop exit strategies for unwinding most of these investments. For Citi, Chrysler, and GM, Treasury will decide when and how to divest its common shares.[25] With the exception of the TARP investments, the AIG trustees, with FRBNY approval, generally are responsible for developing a divestiture plan for the shares in the trust.

For Chrysler and GM, Treasury officials said that they planned to consider all options for selling the government's ownership stakes in each company. However, they noted that the most likely scenario for GM would be to dispose of Treasury's equity in the company through a series of public offerings. While Treasury has publicly discussed the possibility of selling part of its equity in the company through an initial public offering (IPO) that would occur sometime in 2010, some experts we spoke with had doubts about this strategy. Two said that GM might not be ready for a successful IPO by 2010, because the company might not have demonstrated sufficient progress to attract investor interest, and two other experts noted that 2010 would be the earliest possible time for an IPO. Treasury officials noted that a private sale for Chrysler would be more likely because the equity stake is smaller. Several of the experts we interviewed agreed that non-IPO options could be possible for Chrysler, given the relatively smaller stake Treasury has in the company (9.85 percent, versus its 60.8 percent stake in GM) and the relative affordability of the company. Determining when and how to divest the government's equity stake will be one of the most important decisions Treasury will have to make regarding the federal assistance provided to the domestic automakers, as this decision will affect the overall return on investment that taxpayers will realize from aiding these companies. Given the complexity and importance of this decision, we recently recommended that Treasury develop criteria for evaluating the optimal method and timing for divesting its equity stake.[26]

[25]Citi announced its intention to repay the government's assistance and Treasury announced that it intends to sell up to $5 billion of its common equity position in Citigroup. Treasury said it expects to sell the remainder of its shares in an orderly fashion within six-12 months.

[26]GAO-10-151.

In closing, we would like to highlight three issues. First, as we have noted, having clear, nonconflicting goals is a critical part of providing federal financial assistance. Treasury, however, faces a number of competing and at times conflicting goals. For example, the goal of protecting the taxpayers' interests must be balanced against its goal of divesting ownership interests as soon as it is feasible. Consequently, Treasury must temper any desire to exit as quickly as possible with the need to maintain its equity interest long enough for the companies to demonstrate sufficient financial progress. Second, an important part of Treasury's management of these investments is establishing and monitoring benchmarks that will inform the ultimate decision on when and how to sell each investment. To ensure that taxpayer interests are maximized, it will be important for Treasury to monitor these benchmarks regularly. And finally, while many agree that TARP funding has contributed to the stabilization of the economy, the significant sums of taxpayer dollars that are invested in a range of private companies warrant continued oversight and development of a prudent divestiture plan.

Mr. Chairman, Ranking Member Jordan, and Members of the Subcommittee, we appreciate the opportunity to discuss these critically important issues and would be happy to answer any questions that you may have. Thank you.

Contacts

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Mr. KUCINICH. Thank you very much for your testimony, Ms. Brown.

Professor Eckbo, you may proceed for 5 minutes.

STATEMENT OF PROFESSOR B. ESPEN ECKBO

Mr. ECKBO. Thank you, Mr. Chairman and distinguished members of the committee. Thank you for inviting me to testify today.

I argue in my testimony that the Government, as a large shareholder, should adopt a proactive stand in terms of exercising its voting rights to promote best governance practices. To be clear, I am not advocating direct Government intervention in the business operations of the firms in which it is a large shareholder. For that, the troubled firms should hire turnaround expertise. I do not believe the Government can morph itself into turnaround expert in competition with private equity and similar expertise.

What I do recommend is the form of shareholder activism commonly exercised today by large institutional shareholders, such as pension funds in particular, and which is needed to ensure that the companies operate under the most efficient governance systems. My recommendations follow from the fact that the Government is a large shareholder, and not because it is the Government. The recommendations hold for any large shareholder, State or private.

Minority shareholders benefit from the presence of a large block holder because only the latter has the economic incentive to exercise voting rights in an efficient manner. Thus, the Government is now in a unique position to improve inefficient governance systems and practices. However, to have this positive effect, the Government must take a proactive stance on share voting in accordance with the value maximization principle and existing best governance practices derived from this principle.

My written testimony discusses the following areas: general director election reform, structural takeover defenses, downsize and combining the two roles, the CEO and board chairmanship, and executive compensation.

The common theme underlying all of these areas of concern is a lack of confidence in boards. Should we be surprised that shareholders question executive compensation in a system where the director election system is rigged in favor of candidates nominated by corporate insiders, where the firm insists on an arsenal of poisonous takeover defenses, and where the top executive also runs the board?

Things like shareholder say-on-pay, majority rules in director election, appointment of an independent lead director are simply band-aids to help offset the fact that a majority of shareholders find it too costly to actively vote in today's system. If shareholders can reasonably expect to be able to replace directors who they consider incompetent or unwilling to represent owners, why would anyone insist on say-on-pay?

So the most important governance task in the United States today is to fix the director election system itself. SEC has begun to address this concern and now is the time for a large Government shareholder to voice its report.

It is a common misconception that the shareholder value maximization objective is somewhat charitable toward shareholders.

Rather, it is the very fundament on which our corporate system rests, much like a rising tide raises all boats, so that shareholder value maximization serves the interest of all constituencies higher up in the priority food chain. As a large shareholder, the U.S. Government, as the U.K. government before it, should actively seek directors who understand these fundamental points.

Given the prominence of say-on-pay issues in today's debate, how can this issue be resolved? It is unlikely that shareholders are any better than boards in determining the right pay. Three points. First, executive pay should be structured so as to depend on firm performance; thus, the insistence on restricted stock options or restricted stocks representing large—typically 60 percent—of the total pay package. This is in line with the recommendations recently by Mr. Feinberg for TARP recipients.

Second, the more difficult issue is to determine the total pay package itself, and not just the split between cash and stock. The total pay package ought to reflect the executive's value added, his or her marginal productivity. Unfortunately, while it is possible to get a reasonable estimate of the value added of, say, Michael Jordan joining the Chicago Bulls—which may be why no one seems to be arguing that sports superstars and others are overpaid—estimating the margin of productivity of a CEO who works in a large organization is much more difficult. Awarding millions of dollars in executive pay, without being able to forcefully communicate to investors why the CEO is supposed to be worth, is part of why shareholders demand a say. Here, boards and compensation consultants need to work harder.

Third, pay packages will also reflect the relative bargaining power. High profile executives commonly hire professional negotiators to assist in negotiations with the board. The board often does not meet this challenge and risks being seen as pushovers. Since executive pay awards largely come out of the pockets of shareholders, it again comes down to whether the board understands its central role as maximizer in shareholder value.

In sum, we need not only a more efficient director election system, but also to promote an efficient board structure and elect directors who understand the fundamental role of shareholder value maximization in the corporate system. We need better boards and for the Government to lead the way in its capacity as a large shareholder today.

Thank you for your attention.

[The prepared statement of Mr. Eckbo follows:]

The Government as Active Shareholder

B. Espen Eckbo*

Testimony
to
The Congressional Domestic Policy Subcommittee
of
The Oversight and Governance Reform Committee

December 16, 2009

*Professor B. Espen Eckbo holds the Tuck Centennial Chair in Finance at the Tuck School of Business, Dartmouth College, New Hampshire 03755 (USA). He also directs Tuck's Lindenauer Center for Corporate Governance, which he founded in 1999, and he is a Research Associate of the European Corporate Governance Institute. In 2005, he assisted Norway's Global Government Pension Fund, currently the world's largest institutional shareholder in global equity markets, in designing its corporate governance principles and strategy. Professor Eckbo's resume is available at www.tuck.dartmouth.edu/eckbo, and most of his research papers can be accessed at http://ssrn.com/author=98728. His testimony is given in his individual capacity as an academic expert in finance and corporate governance, and represents his own views alone.

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The Government as Active Shareholder

by

Professor B. Espen Eckbo

Mr. Chairman and distinguished members of the Committee, thank you for inviting me to testify in today's hearing. My name is Bjorn Espen Eckbo. I hold the Tuck Centennial Chair in Finance at Dartmouth College's Tuck School of Business. I also direct Tuck's Lindenauer Center for Corporate Governance, which I founded ten years ago in 1999. I am testifying as an expert in financial economics and corporate governance.[1]

1 Introduction: The Value of Shareholder Activism

I have been asked to discuss principles for the government's exercise of its shareholder rights in companies like AIG, Citigroup, GM, and Chrysler, purchased under the Troubled Asset Relief Program (TARP) established by the Emergency Economic Stabilization Act of 2008 (EESA). The Obama Administration has begun to formulate principles for managing these shareholdings.[2] For example, the administration is committed to manage the ownership stake in a hands-off, commercial manner. The government will exercise its shareholder vote on core governance issues, such as director election and major corporate events or transactions. No government employee will serve on the boards or be employed by the companies. Moreover, consistent with Uncle Sam as a reluctant "owner of last resort", the shareholdings will be privatized at the earliest possible time, taking into account "conditions on the ground" in terms of the firm's financial health and aggregate capital market liquidity.

While these principles are sound, they lack detail and should be broadened. *I argue in this testimony that the government ought to adopt a pro-active stance in terms of exercising voting rights.* As I explain below, given the strong protection afforded minority shareholders under U.S. corporation laws, the emergence of a large blockholder is generally a positive development for the

[1]I am testifying in my individual capacity as an academic expert in finance and corporate governance. The views expressed herein are solely my own and should not be attributed to Dartmouth College or any other institution with which I am affiliated. I am grateful for the research assistance of Giulia Paone, a research associate of Tuck's Lindenauer Center for Corporate Governance. Karin Thorburn, Professor of Finance at the Norwegian School of Economics and Business Administration, made a major contribution to Section 2. I am also grateful for discussions with William Megginson, Rainbolt Chair in Finance at the Michael F. Price College of Business of the University of Oklahoma, on issues of state privatization programs.

[2]See, e.g., Mike Allen, "Obama Gives Rules for Owning Firms," *POLITICO*, June 1, 2009.

entire shareholder base. Minority shareholders benefit from the presence of a large blockholder because only the latter has the economic incentive to exercise voting rights in an efficient manner. Thus, the government is now in a unique position to improve inefficient governance practices. But this require taking a pro-active stance on share-voting in accordance with the value-maximizing principle and existing best governance practices. I provide some guidance along these lines below.

As shown in Exhibit 1, the institutional investor community, major stock exchanges, national governments, and international organizations such as the United Nations (UN) and the Organization for Economic Co-operation and Development (OECD), all have developed corporate governance recommendations. As the exhibit shows, governance standards emanate not only from statutes, but also from various investor organizations in the U.S. (e.g., the Council of Institutional Investors), major pension funds like TIAA-CFEF and CalPERS, and professional director organizations (e.g., the National Association of Corporate Directors).

Outside of the U.S., the International Corporate Governance Network (a global organization of large institutional investors), prominent national organizations such as the Canadian Coalition for Good Governance, and sovereign wealth funds like Norway's Government Pension Fund, are also actively developing standards and voicing demand for these to be adopted by their portfolio companies. Moreover, political and humanitarian organizations including the UN are widening the scope of the debate to also include "socially responsible investment" policies which add environmental and social objectives to the governance agenda.

These global governance standards evolve and are updated periodically. As a result, investor and public opinions around the world are converging both in terms of our conceptual understanding of the issues and recommendations for best practices. The political process has also picked up speed and is giving the governance reform movement momentum. To tap into this dynamic convergence process, I start with a basic tour of some key issues and their grounding in economic theory. Moreover, I provide broad strokes of the empirical evidence on the link between corporate governance end economic and financial development. The fact that countries with widely different legal traditions and level of economic and financial development tend to converge is a testimony to the power and reasonableness of the basic economic principles underlying the drive for governance reform.

In Section 2 of this testimony, I explain the basic logic of a corporate governance system, and how systems differ across Anglo-American and German legal traditions. This section, which helps provide a perspective on the recommendations in the subsequent sections, may be skipped by someone already familiar with the governance literature. Section 3 discusses issues concerning the practical management of the government's share-ownership, with a recent model example from the U.K.. This section also displays some of the specific concerns about state-ownership reflected in the governance guidelines issued by the Organization for Economic Co-operation and Development (OECD). Moreover, I comment on the difficult issue of determining a government exit (privatization) strategy. Section 4 discusses specific issues in the current U.S. governance debate. These include director election reform, splitting the roles of chief executive officer (CEO) and board chairmanship, removal of "draconian" takeover defenses, and last but not least, the shareholder "say on pay" movement. I summarize key recommendations at the end.

2 Corporate Governance Basics: Principles and Evidence

2.1 The shareholder value-maximization criterion

Organization of business activity involves contracting with factors of production for delivery of input factors such as labor, equipment, and capital. The set of contracts needed to establish this supply chain and bring the final product to market is an essential feature of what defines "the modern corporation". Corporate governance can be viewed as a set of principles and practices designed to manage and control potentially costly conflicts of interest which arise between the various contracting parties within this nexus of contracts.[3]

Viewing the firm as a nexus of contracts provides a practical decision rule for corporate directors in terms of balancing the diverse interests of the firm's contracting parties. Because the equity contract represents the most junior claim on the company's revenue flow (shareholders are the firm's "residual claimants"), it gets paid last. As in "a rising tide lifts all boats", the objective of maximizing shareholder value protects also more senior contracts with higher cash flow priority. Under most circumstances, what's good for common stockholders is also good for the firm's other constituencies.

[3]Michael C. Jensen and William H. Meckling, "Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure," *Journal of Financial Economics* 3, 305-360 (1976).

There is one circumstance where shareholder interests are not aligned with creditors—and in which the value-maximization rule may become inefficient. When a company approaches bankruptcy, it may be in shareholders' interest to "go for broke" by switching to high-risk investment projects (effectively gambling with creditors money). If the gamble pays off, shareholders win, and if it fails, creditors loose. Bankruptcy laws around the world attempt to address this issue by retroactively transferring director fiduciary duties from shareholders to bondholders upon bankruptcy filing. For example, a dividend payment to shareholders in the months leading up to the bankruptcy filing may be reversed by the court. Moreover, corporate managers are themselves concerned with their long-term reputation as they need to find a new employer after bankruptcy, which further reduces risk shifting incentives in practice.[4]

It is my opinion that the legal system, in combination with personal managerial incentives, is sufficient to attenuate adverse risk-shifting incentives so that it is optimal for boards to maintain shareholder value maximization as the company's key objective for all practical purposes.

2.2 Minority shareholder protection

Because small shareholders find it too costly to closely monitor management, the separation of ownership and control in large modern corporation gives rise to an agency problem. This agency problem was recognized already by Adam Smith in 1776:

> "The directors of [joint stock] companies, however, being managers rather of other people's money than of their own, it cannot be well expected, that they should watch over it with the same anxious vigilance [as owners]. Negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such a company."[5]

The problem for small shareholders is that managers have access to sophisticated expropriation techniques. Corporate insiders around the world have been known to sell the firm's output or assets at below-market prices to another company in which they are beneficial owners (self-dealings), dilute shareholder rights through targeted security issues, receive excessive compensation, etc.[6]

[4]For empirical consistent with managerial conservatism prior to bankruptcy filing, see B. Espen Eckbo and Karin S. Thorburn, "Control Benefits and CEO Discipline in Automatic Bankruptcy Auctions," *Jopurnal of Financial Economics* 69, 227-258 (2003).

[5]Adam Smith, *The Wealth of Nations*, Cannan Edition (New York Modern Library) [1776] (1937) p. 700.

[6]See Andrei Shleifer and Robert Vishny, "A Survey of Corporate Governance," *Journal of Finance* 52, 737-783 (1997).

Moreover, small shareholders are generally more vulnerable to expropriation practices than are other stakeholders. The reason is that management continuously develops personal relationship with employees, customers, and suppliers. This is in contrast to outside investors, who remain useful to the company only at the few discrete points in time when the company needs outside capital.

For this reason, a corporate governance system is designed fundamentally to protect minority shareholder interests:

> *A corporate governance system is the set of constraints on minority shareholder expropriation implied by internal corporate control mechanisms, external capital market monitoring, and the country's laws and regulations.*

With this definition, the key question becomes whether the governance system is sufficiently sophisticated to allow small, outside investors to believe that corporate insiders will maximize firm value and return the profits to investors.

2.3 Mechanisms for investor rights protection

Countries with developed capital markets generally offer investor protection through an elaborate system of corporate-, bankruptcy-, securities-, and takeover laws. Key shareholder rights include the right to pro-rata dividends, to appoint the firm's board of directors, and to vote on major corporate investment decisions such as mergers. However, voting rights associated with equity ownership may be expensive to exercise.[7]

Small diversified stockholders quickly realize that attending shareholder meetings is not worth the effort (the so-called "free-rider" problem).[8] A consequence of diversified holdings is that few investor have the incentive to incur expenses in order to monitor and evaluate how the firm is run. Thus, if the firm does not have large investors in its ownership base, little shareholder monitoring

[7] For example, in some countries proxy voting is ruled out requiring shareholders to show in person to vote. See also Rafael La Porta, Florencio Lopez-des-Silanes, Andrei Shleifer and Robert Vishny, "Law and Finance," *Journal of Political Economy* 106, 1113-1131 (1998). For a detailed analysis of a country's share-voting system, see B. Espen Eckbo, Giulia Paone and Runa Urheim, "Efficiency of Share-Voting Systems: Report on Italy," Working Paper 2009-64, Tuck School of Business (2009).

[8] Classical finance theory hold that it is optimal for the typical investor to hold diversified portfolios of assets (Harry Markowitz, *Portfolio Selection*, New York: John Wiley & Sons (1959)). This is in fact a reasonable good description of individual investors in the U.S. and the U.K.. See Kenneth R. French, "The Costs of Active Investing," *Journal of Finance* 63, 1537-1573 (2008) for evidence on the low cost of holding passive diversified portfolios of stocks.

will take place.[9]

Because large owners have incentives to actively monitor management, concentrated ownership generally improves shareholder rights enforcement. However, the interest of large shareholders may sometimes conflict with the interests of minority stockholders. Therefore, the laws of most countries grant special legal protections to minority shareholders. For example, consider so-called "minority freeze-out" transactions, where a corporation's controlling shareholder bids for the remaining minority equity stake. These transactions frequently occur as a second-step or "clean-up" merger following a merger or tender offer. The judicial standard in the U.S. and most developed countries discourages coercive bids while encouraging full information arms-length negotiations between claimants.[10]

Creditor rights include the power to seize collateral, to uphold the seniority of loans, and to force a bankruptcy proceeding when the company fails to service its debts. Since default on a debt contract is a straightforward event that can be verified in court, legal protection of creditors is typically more effective than that of shareholders. Creditor rights are governed primarily by bankruptcy and insolvency law and vary with the degree of control rights allocated to shareholders and management in formal reorganization procedures.[11]

Outside investors depend on reliable information about the firm's performance to enforce their rights. Disclosure and accounting rules provide for accuracy and depth of the firm's financial statements. To verify the accuracy of the financial reporting, listed companies are required to have their financial statements certified by an independent accountant.[12]

The enforcement of regulation and laws is just as important as their content. A first-rate governance system requires laws and contracts to be strictly upheld by regulators and courts, as

[9] For a survey of ownership structures in the U.S., see Clifford G. Holderness, "A Survey of Blockholders and Corporate Control", *Federal Reserve Bank of New York Economic Policy Review* (2002).

[10] Given the potential for self-dealing, Delaware courts have maintained that freeze-out transactions are subject to judicial review, and grants appraisal rights to minority shareholders. See, e.g., Ronald J. Gilson and Jeffrey N. Gordon, "Controlling Controlling Shareholders," *University of Pennsylvania Law Review* 152, 785-843 (2003). For empirical evidence, see Thomas W. Bates, Michael L. Lemmon and James S. Linck, "Shareholder Wealth Effects and Bid Negotiation in Freeze-Out Deals: Are Minority Shareholders Left out in the Cold?", *Journal of Financial Economics* 81, 681-708 (2006).

[11] For surveys of creditor rights and bankruptcy law across countries, see e.g., Edith S. Hotchkiss, Kose John, Robert Mooradian, and Karin S. Thorburn, "Bankruptcy and the Resolution of Financial Distress", in B. Espen Eckbo, *Handbook of Corporate Finance: Empirical Corporate Finance*, Volume 2, (Elsevier/North-Holland Handbook of Finance Series), Ch. 14, 235-287 (2008), and B. Espen Eckbo and Karin S. Thorburn, "Bankruptcy as an Auction Process: Lessons from Sweden", *Journal of Applied Corporate Finance* 21, 36-50 (2009).

[12] In the U.S., the Securities Act of 1933, the Securities Exchange Act of 1934, and the Sarbanes-Oxley Act of 2002 require annual audits of the financial statements for firms issuing securities to the public.

well as by market participants. Thus, the legal and regulatory system complements the effectiveness of market forces in restricting expropriation by corporate insiders.

There are several important market forces that help reduce agency costs. For example, an active market for corporate control limits agency cost through the threat of managerial displacement in a hostile takeover. Also, a well-functioning managerial labor market disciplines top executives concerned with their future career opportunities. Moreover, firms requiring new outside capital must "dress up" for the capital market by presenting evidence of adequate internal control systems. There is a great variation across countries in terms of the effectiveness of these market forces.

The corporate board is the most important internal control system. Research indicates that the best boards are relatively small, have independent directors, require financial literacy, and rely on stock-based compensation of directors.[13]

Furthermore, an effective internal control system effectively aligns managerial and shareholder interests through stock-based executive compensation. Research also indicates that pay-for-performance schemes such as options and bonus plans alleviate agency costs and promote stock-market confidence. Compensation issues are discussed in greater details below.

3 Practical Management of the Government's Shareownership

3.1 Creating an independent management company

The form of the organization of the ownership management function is vital for the success of a policy of protecting the taxpayer. To minimize costly political jockeying for government favors—whether from inside the firm or from outside (local) constituencies—the management function should be organized so as to promote the view of the government as a strictly professional owner. This suggests that the management function should be organized in an independent entity with fiduciary duties to Congress (to satisfy statutory requirements for congressional control with TARP funds).

[13]For reviews of empirical studies on boards, see, e.g., Benjamin E. Hermalin and Michael S. Weisbach, "Boards of Directors As an Endogenously Determined Institution: A Survey of the Economic Literature," *Federal Reserve Bank of New York Economic Policy Review* 9, 7-26 (April 2003), Sanjai Bhagat and Brian Bolton, "Corporate Governance and Firm Performance," *Journal of Corporate Finance* 14, 264-269 (2008), Stuart L. Gillan, "Recent Developments in Corporate Governance: An Overview," *Journal of Corporate Finance* 12, 381 (2006), and Renee Adams, Benjamin E. Hermalin and Michael S. Weisbach, "The Role of Boards of Directors in Corporate Governance: A Conceptual Framework and Survey," National Bureau of Economic Research, Inc, NBER Working Papers: 14486, (2008).

This management entity should hold the government's shares in both the financial and automotive industries. The entity should ensure it has the expertise needed to adequately monitor and divest (privatize) these ownership positions. It would also be natural for the Treasury's exercise of corporate governance functions under TARP—including "say on pay" and the various other shareholder rights issues discussed below—to be located in this independent entity.

3.2 The case of U.K. Financial Investments Ltd.

After acquiring common stock through a government rescue program much like TARP in the U.S., the U.K. government in November of 2008 created a limited liability corporation, U.K. Financial Investments Ltd (UKFI, www.ukfi.gov.uk.), to manage its shareholdings. UKFI is a Companies Act Company (Company no: 6720891), with HM Treasury as its sole shareholder. The company's activities are governed by its Board, which is accountable to the Chancellor of the Exchequer and—through the Chancellor—to Parliament.

As of June 30, 2009, the government's shareholdings included 70 percent of the voting share capital in the Royal Bank of Scotland (RBS), and 43 percent of the voting shares in Lloyds TSB/Halifax Bank of Scotland (Lloyds Banking Group). The government also holds shares in Northern Rock and in Bradford & Bingley. The UKFI's management group consists of around 15 people. Membership of the UKFI Board comprises a private sector Chair, three non-executive private sector members, a Chief Executive and two senior Government officials. Sir David Cooksey is Chairman and John Kingman is Chief Executive.[14]

UKFI's Market Investments mission is to dispose of the Government's shareholdings in RBS and Lloyds in an orderly and active way, with due regard to financial stability and the promotion of competition. The fund anticipates that it eventually will be privatizing the holdings by selling shares to investors in the public equity markets. The prospect of this selling process means UKFI's main objective is to maximize the market value of the two banks.

UKFI formulates its management objectives as follows:[15]

- "We see ourselves as having five principal tasks:

[14]http://www.ukfi.gov.uk/about-us/

[15]http://www.ukfi.gov.uk/about-us/investments-strategy/

- understanding how the problems in the sector came about, learning the lessons and identifying the specific issues that our investee banks face;
- working with the boards and management at each bank to develop and implement an agenda to maximise value for shareholders;
- engaging with other investors and market participants to understand their views, and to seek to build confidence in our approach;
- developing and implementing a disposal strategy for the investments; and
- supporting Government (primarily HM Treasury) on their response to the crisis, from a shareholder perspective."

The UKFI objectives appear in a Framework Document (last revised on July 13, 2009) drawn up by both UKFI management and its shareholder, HM Treasury. In addition to the financial objectives above, the Framework Document states that:

- The government's ownership is temporary in nature.
- UKFI will elect qualified, independent non-executive members to the banks' boards.
- UKFI will engage actively with its portfolio companies in accordance with best institutional investor practice (using published information in a structured dialogue).[16]
- UKFI will ensure that there are no interlocking directorates between itself and portfolio companies or between portfolio companies with respect to its board representatives.
- UKFI will comply with the Code of Market Conduct, e.g., in situations where its management leads to the acquisition of inside (price-sensitive) information about its portfolio companies.
- UKFI will (on behalf of HM Treasury) vote all the shares in the Investee companies wherever practicable to do so, inform the relevant Investee Company in advance of its voting intentions, and disclose how it has voted.

[16]Section 3 of the Investment Mandate ("UKFI's approach to managing the Investments") establishes that: "In managing the investments, UKFI will (on behalf of HM Treasury) follow best institutional shareholder practice. This includes compliance with the Institutional Shareholders' Committee's Statement of Principles together with any developments to best institutional shareholder practice arising from recommendations or guidance contained in the Walker Review or elsewhere." The Institutional Shareholders' Committee's Statement of Principles, which set out best practices for institutional shareholders. published its Code on the Responsibilities of Institutional Investors on November 16, 2009, available at: http://institutionalshareholderscommittee.org.uk/sitebuildercontent/sitebuilderfiles/ISCCode161109.pdf.

Finally, the HM Treasury requires UKFI to seek prior approval from the Treasury on decision concerning "value-realization" transactions and "restructuring" transactions. In other words, the Treasury does not delegate to UKFI transactions which amount to a privatization of the fund, nor transactions which may require additional taxpayer capital infusion in order to restructure the Investee companies.

3.3 The case of Norway's $400+ billion sovereign wealth fund

Yet another interesting example of a country which decided to insulate the management of its financial assets from direct political control is Norway. While Norway (like Sweden) organizes its holdings of state-owned enterprises directly under the department of commerce, Norway's $400+ billion sovereign wealth fund is managed by a wholly-owned division of the Norwegian Central Bank (Norges Bank).[17] Formally, the Norwegian Treasury is the owner of the fund and sets broad guidelines for the fund's investment policy (and requires the fund to hold a broadly diversified portfolio held exclusively in foreign stocks and bonds). A major motivation for this structure is the desire to communicate to world capital markets that the fund operates like any other professional (non-political) investment company. The fund, which is the largest equity investor in the most liquid equity markets around the world today, represents the gold standard among sovereign wealth funds in terms of transparency and governance standards.

3.4 OECD guidelines for state-owned enterprises

OECD has issued a set of guidelines designed to help make state-owned enterprises (SOEs) become competitive, efficient and transparent.[18] These guidelines are fully compatible with the OECD Principles of Corporate Governance, but address issues more specific to the corporate governance of SOEs. While the governance of SOEs goes beyond the government's short-term shareholdings in TARP-rescued companies, the guidelines stress the state's responsibility for actively exercising its ownership functions and avoiding political interference in the management of the company.

To illustrate, the OECD guidelines for SOEs encourage the State to:

- Maintain a level-playing field for SOEs competing with the private sector by separating the

[17]The manager of the fund is Norges Bank Investment Management (NBIM).
[18]http://www.oecd.org/dataoecd/46/51/34803211.pdf.

state's ownership role from its regulatory role and other functions, and by making sure that SOEs' access to state financing is on competitive terms.

- Establish an active and transparent ownership policy, exercised through a separate ownership entity. This ownership entity should be held accountable to representative bodies such as the Parliament/Congress. Moreover, the SOEs should have full autonomy in its day-to-day operations.

- Exercise ownership rights in accordance with the SOE's charter and bylaws. The exercise of ownership rights requires being represented at the general shareholders meetings and voting the state's shares, establishing well structured and transparent board nomination processes in fully or majority owned SOEs, and participate in the nomination of boards.

- Set up reporting systems allowing regular monitoring and assessment of SOE performance.

- When permitted by the legal system and the state's level of ownership, maintain continuous dialogue with external auditors and specific state control organs.

- Ensure that remuneration schemes for SOE board members foster the long term interest of the company

- Recognize the rights of all shareholders and in accordance with the OECD Principles of Corporate Governance ensure their equitable treatment and equal access to corporate information. This requires SOEs to observe a high degree of transparency towards all shareholders and to develop an active policy of communication and consultation with all shareholders. The participation of minority shareholders in shareholder meetings should be facilitated in order to allow them to take part in fundamental corporate decisions such as board election.

- Require SEOs to report on their relations with all major stakeholders—not only shareholders.

- Empower boards by clarifying their mandates and respecting their independence; separating the role of Chairman and CEO and giving boards the power to appoint CEOs; create specialized committees to support the full board in performing its functions (particularly audit-, risk management-, and remuneration committees); and systematically monitor the board's performance.

- Improve transparency by strengthening internal controls; carry out independent external audits based on international standards; disclose any financial assistance from the state; and produce aggregate performance reports.

3.5 When and how to exit?

When and how can the U.S. government expect to be able to start privatizing its 79.9% ownership of AIG? For sure the company must be out of the woods—or the distressed debt overhang will make it impossible to sell equity. Until a realistic bottom has been reached in AIG's financial affairs, a sale is infeasible—no private buyer would purchase the company with open-ended need for continuing capital infusions. Also, it is unlikely that selling off AIG while it still has substantial outstanding government-guaranteed would be in the taxpayers' best interest.

Moreover, the optimal timing of the privatization depends on the aggregate supply of capital from institutions and households. Much as we observe for initial public offerings (IPOs) and Private Equity fund exits, state privatization sales tend to cluster in time, typically when the overall IPO and stock markets are historically high. Empirical research shows that the frequency of share issue privatizations (SIPs) were particularly high in 1998-2000 and, to a lesser degree, in 2003-07. The evidence of the past three decades of privatization experience also shows that the market for properly priced SIPs is highly elastic, with extremely large offerings being executed without much difficulty. This supports the view that, if global insurance market conditions are right, a sale of AIG can be structured successfully despite its large size.[19]

Following a decision to sell, international experience with privatizations further suggests that the state should strive to sell its ownership stake as quickly and transparently as feasible, for cash, and to the highest bidder, foreign or domestic. Governments have used three basic methods to privatize:

- Direct asset sale: sale of company or company assets in return for cash.
- A secondary sale of the state's shareownership to the public (SIP).

[19]For a comprehensive literature review of state privatization studies, see William L. Megginson and Jeffry M. Netter, "From State to Market: A Survey of Empirical Studies on Privatization," *Journal of Economic Literature* 39, 321-389 (2001). For evidence on "hot" issue markets, see the survey by B. Espen Eckbo, Ronald W. Masulis and Oyvind Norli, "Security Issues," in B. Espen Eckbo (ed.), *Handbook of Corporate Finance: Empirical Corporate Finance* Volume 1(Elsevier/North-Holland Handbook of Finance Series), Ch. 6, 233-373 (2007).

- Voucher privatization: vouchers exchangeable into the state's common stock are distributed to citizens for free.

Internationally, the SIP method is more likely to be used (1) the larger the firm, (2) the stronger are a country's investor rights protection, and (3) the more profitable the firm being privatized.[20]

If AIG is too big to be sold to a competitor when it reaches core profitability, then the only real option would be a secondary offering to the market or to a private equity investors.[21] A targeted auction to private equity investors could be arranged quickly and would likely fetch a higher price per share sold than would a SIP, but a seasoned public offering would be more transparent and therefore more politically acceptable. Depending on the total market value of AIG at the time of the offering, the sale could be structured as a single block or split into several tranches.

4 Strategies for Government Shareholder Activism

As discussed in Section 2 above, any corporate governance system relies on shareholders exercising voting rights. By substantially concentrating the share-ownership of the TARP recipients, the government has already helped resolve a structural governance problem that plagued these and most other widely held companies for years: the tendency for small shareholders not to exercise their vote—or to passively cast their votes in favor of management. Firms pay up front for market concerns with wealth expropriation through a higher cost of equity and debt capital, which in turn stifles economic activity. It is therefore important that the unit created to hold and manage the government's equity ownership in TARP recipients actively (through voting) supports core corporate governance principles. I discuss four important areas of governance reform next.

[20]See William L. Megginson, Robert C. Nash, Jeffry M. Netter and Annette Poulsen, "The Choice of Private Versus Public Capital Markets: Evidence from Privatizations," *Journal of Finance* 59, 2835-2870 (2004). Other countries have far greater experience with privatizations than the U.S.. The only two major share issue privatizations (SIPs) executed by the U.S. Federal government over the past quarter-century are Conrail in 1987 and U.S. Enrichment Corp in 1999.

[21]The limited experience with voucher programs around the world suggests that vouchers is an inferior privatization method to both SIPs and direct asset sales.

4.1 Director election reform

The SEC has recently issued a proposal to reform the director nomination and election procedure for U.S. public companies.[22] The proposal changes the federal proxy rules so as to remove certain impediments to the exercise of shareholder rights to nominate and elect directors to company boards. The new rules would require, under certain circumstances, a company to include in the company's proxy materials a shareholder's, or group of shareholders', nominees for director. In addition, the new rules would require companies to include in their proxy materials, under certain circumstances, shareholder proposals that would amend, or that request an amendment to, a company's governing documents regarding nomination procedures or disclosures related to shareholder nominations.

This proposal has far-reaching implications for the director election process. Under the existing system, shareholders receive a ballot listing the directors nominated by the company only. Suppose the election is uncontested, i.e., no shareholder has launched a proxy contest for directors.[23] There are now two scenarios: the company allows shareholders to elect directors either with a "plurality" or with a "majority" of the votes cast. Companies with plurality voting mails out a proxy card asking shareholder to tick off one of two boxes: "yes" or "abstain". In principle, under this plurality system, you need only a single "yes" vote in order to formally have been elected. While a low yes count is, of course, an embarrassment to the nominated directors, there are no formal constraints on the number of yes votes required to be elected. More importantly, there is no mechanism (other than an expensive proxy contest) for shareholders to register objections to the nomination. Shareholders who "abstain" do so either because they object or because they simply do not care, and it is not possible to tell which of the two sentiments best describes the voting outcome.[24]

The second scenario is for companies who have passed majority voting. Now the company mails out a ballot with three boxes, "yes" "no" and "abstain". The director nominee is elected if the number of yes votes exceeds the number of no votes, while votes to abstain do not affect the election

[22] SEC Proposed Rule "Facilitating Shareholder Director Nominations", File No. S7-10-09 (June 10, 2009). http://sec.gov/rules/proposed/2009/33-9046fr.pdf.

[23] In a proxy contest, a dissenting shareholder goes through a costly proxy registration procedure and shareholder solicitation process.

[24] Under a "plurality-plus" standard, directors are elected by plurality voting but must offer to resign if the holders of a majority of shares withhold their votes.

outcome.[25] In this case, there is a clearer message to the director nominee concerning the actual support received. However, the degree of support is still an open question because a large number of shareholders may have chosen to abstain rather than vote no when they are given only a single slate of director nominees to vote for. Absent an alternative, the best choice may simply be to let the company's proposal pass. For example, shareholders who are generally critical of the a board's executive compensation policy may be reluctant to fire the board in the absence of an alternative.[26]

The SEC proposal further improves upon the majority rule and extends the improved proxy voting system to all public companies. The proposal is to allow, under certain conditions, shareholders to include their own director nominee in the company's proxy material and on the ballot. Since voting in favor of the shareholder nominee is effectively a "no" to the company's nominee, this effectively eliminate the pure plurality voting system in favor of majority voting. Furthermore, since shareholders now have two competing candidates for director, the proposed system also improves on the majority voting system.[27] The current U.S. director election system weakens the U.S. corporate governance system. The time for reform has come.

[25]Citigroup Inc. has adopted a By-law providing a majority vote standard for director elections. Under Article 4 ("Directors", Section 1) of the Citigroup Bylaws, "A nominee in an uncontested election shall be elected to the Board of Directors if the votes cast for such nominee's election exceed the votes cast against such nominee's election. For purposes of these By-Laws, an "uncontested election" means any meeting of stockholders at which directors are elected and with respect to which either (i) no stockholder has submitted notice of an intent to nominate a candidate for election pursuant to Section 11 of article III of these By-Laws or (ii) if such notice has been submitted, all such nominees have been withdrawn by stockholders on or before the tenth day before the company first mails its notice of meeting for such meeting to the stockholders. In all director elections other than uncontested elections, directors shall be elected by a plurality of the votes cast, and stockholders shall not be permitted to vote against any nominee for director. (...) If a nominee in an uncontested election is not elected by a majority vote, then the Director shall offer to resign from his or her position as a Director. Unless the Board decides to reject the offer or to postpone the effective date of the offer, the resignation shall become effective 60 days after the date of the election. In making a determination whether to reject the offer or postpone the effective date, the board of Directors shall consider all factors it deems relevant to the best interests of the Company. If the Board rejects the resignation or postpones its effective date, it shall issue a public statement that discloses the reason for its election. (...)" (http://www.citigroup.com/citi/corporategovernance/docs.htm).

[26]Note also that the most common models of majority voting merely require that nominees not receiving a majority of votes submit a letter of resignation. Boards may reject the letter and, in fact, have done so on a number of occasions, effectively overturning the decision of shareholders. See, e.g., J. Robert Brown, "Majority Voting, Delaware Statutory Reform, and Shareholder Access to the Proxy Statement: A Comment to the Securities and Exchange Commission," U Denver Legal Studies Research Paper No. 09-24 (2009).

[27]Under the SEC proposal, to have access to the company's proxy material and the ballot, a shareholder or group of unaffiliated shareholders must own a minimum fraction of the shares: 1% if the company has net assets of $700 million or more; 3% for companies with assets between $75 million and $700 million; and 5% if the firm has assets less than $75 million. Moreover, the shares must have been held for at least one year prior to the date the shareholders notifies the company of its intent to nominate a director. Unaffiliated shareholders are permitted to aggregate their holdings for the purpose of meeting this minimum shareownership requirement. The right is to nominate at most one director for a board of seven or less, or up to 25% of the directors for larger boards. To replace a greater number of directors, shareholders must engage in the traditional proxy contest. The right to nominate is on a first-come-first-serve basis.

4.2 Eliminating costly takeover defenses

As discussed above, since the vast majority of shareholders diversify their holdings across firms (in order to reduce their exposure to firm-specific risk), large corporations often end up with a widely dispersed shareholder clientele. In this situation, the costs of monitoring incumbent managers will exceed the benefits for each (small) investor, and the majority of the firm's shareholders will remain passive owners of the corporation. Implicitly, these shareholders must rely on market forces, such as competition among managers in the market for corporate control, to align the interests of managers and owners.[28] For this reason, takeover defenses which curb takeover activity risks reducing the overall efficiency of the corporate sector.

It is common in the governance literature to distinguish between external and internal markets for corporate control. The external control market involves takeover bids and specific target responses while the internal market involves general board actions and shareholder voting. Examples of internal antitakeover provisions are classified (staggered) board (directors are divided into separate classes—typically three—and elected to overlapping terms), unequal voting rights (e.g., two classes of common, one with zero voting rights), and various restrictions on shareholder rights to amend company charter and bylaws, to act by written consent, and to call special meetings. Examples of external antitakeover provisions are poison pill or shareholder rights plan, supermajority requirements to approve a merger, blank check preferred stock (used to implement a posion pill), and fair price provision (requires a large shareholder to pay a minimum price set by formula for all shares acquired in the back end of a two-tiered acquisition).

When adopting the poison pill, the corporation issues to its stockholders (usually by means of a dividend) certain rights to purchase stock (typically preferred). The rights are out of the money

[28] "The managerial competition model...views competing management teams as the primary activist entities, with stockholders (including institutions) playing a relatively passive, but fundamentally important judicial role. Arbitrageurs and takeover specialists facilitate these [corporate control] transactions by acting as intermediaries to value offers by competing management teams, including incumbent managers. Therefore, stockholders in this system have relatively little use for detailed knowledge about the firm or the plans of competing management teams beyond that normally used for the market's price setting function. Stockholders have no loyalty to incumbent managers; they simply choose the highest dollar value offer from those presented to them in a well-functioning market for corporate control, including sale at the market price to anonymous arbitrageurs and takeover specialists. In this perspective, competition among managerial teams for the rights to manage resources limits divergence from shareholder wealth maximization by managers and provides the mechanism through which economies of scale or other synergies from combining or reorganizing control and management of corporate resources are realized." Michael C. Jensen and Richard R. Ruback, "The Market for Corporate Control: The Scientific Evidence," *Journal of Financial Economics* 11, 5-50 (1983).

(the exercise price exceeds the then market price) and not exercisable until a triggering event. The triggering event is that someone acquires a certain percentage (e.g., 15%) of the firm's voting shares. Pending their exercise, the rights may be redeemed for a nominal value by the board. If triggered, the rights give each holder, other than the stockholder that triggered the pill, the right to purchase shares of the issuing corporation (flip-in) or of the acquirer (flip-over) at a deep discount (e.g., 50%) to the market price. Pills may be issued by the board without prior stockholder approval, and they may be issued after having received a hostile bid ("morning after" pill).[29]

In 1985, the Delaware Supreme Court upheld Household International's adoption of a shareholder rights plan as reasonable under the Unocal standard, even though the company did not face a hostile threat.[30] Subsequently, Delaware has upheld the right of a board to refuse to redeem a pill in the face of an all-cash, non-coercive tender offer, even though a majority of the company's stockholders had tendered their shares to the bidder.[31] On the other hand, Delaware courts have invalidated the so-called "dead-hand" poison pill, which attempted to provide that only "incumbent" directors could redeem the rights, thus preventing directors elected by the hostile bidder from unwinding the pill.[32] This is an important decision as one (although costly) way to circumvent the pill is to launch a proxy contest simultaneously with the hostile offer, in the hope of winning enough board seats to have the board rescind the pill and let the offer go through.

The combination of a hostile bid and a proxy contest does not work if the target board is classified or staggered. For example, if only one-third of the board is up for election, the hostile bidder cannot win the majority needed to rescind the pill. Thus, by eliminating staggered boards, one also limits the scope for the poison pill to act as a costly antitakover defense of inefficient incumbent target managements.

4.3 Splitting the CEO and Chairmanship positions

The international governance standard and practice is to separate the positions of CEO and Chairman of the board (in some cases, like Sweden, by statute). It is my recommendation that U.S.

[29] Pill adoptions does not require a shareholder vote since it is akin to a dividend payment. Recently, there is a growing demand from large institutional shareholders such as pension funds to allow shareholders to vote on pill adoptions.

[30] Moran v. Household International, Inc. 500 A.2d 1346 (Del. 1985).

[31] Moore Corp., Ltd. v. Wallace Computer Services, Inc., 907 F. Supp. 1545 (D. Del. 1995).

[32] Quickturn Design Systems, Inc. v. Shapiro 721 A.2d 1281 (Del. 1998). This version of the pill had been upheld under Georgia Law, but also invalidated under New York law.

companies adopts this model as well.

The typical defence of having insiders on boards is one of efficiency: the board requires CEO and other management input to make proper decisions. What is not explained by this argument, however, is why the CEO needs a vote on the board—let alone the *chairmanship*—in order to supply the board with his or her input. Boards may—and regularly do—delegate the compensation decision to a board compensation committee consisting of independent directors only. Nevertheless, it takes a strong-willed character to resist the will of the CEO-chairman, even for directors that meet technical criteria for independence. In todays system, the vast majority of directors sit on boards because the CEO recommended their appointment (and the director election system made it difficult to defeat incumbents), so a certain loyalty can be expected.

It has also been argued that, because of the difficulty of writing employment contracts which cover all possible future contingencies, it may sometimes be efficient to complement imperfect employment contracts with board seats. Presumably, the board seats allow employees to influence the firm's investment strategy and thus effectively control some of the adverse contingencies which the employment contract leaves out. I do not, however, favor using the board chairmanship as a way to improve on CEO employment contracts in this sense.

Given that a major task of the board is to hire and fire the CEO and set his or her compensation, it makes intuitive sense that the CEO should not also occupy the chair position. Moreover, the system with an independent "lead director" running the board in situations where the CEO is conflicted seems inefficient: why have two "bosses" on the board when one is enough? Why not just make the lead director the chair? On this issue, I believe the international standard has got it right and the U.S. wrong: CEOs may sit on the board but not as chair.

4.4 Shareholder "Say on Pay"

There is broad agreement that executive pay should be structured so as to depend on firm performance. One way to obtain such "pay-performance sensitivity" is to grant the executive stock-based compensation (stock options or restricted stock grants). As long as the executive is in a position to affect the firm's stock price through his or her work effort, stock-based compensation means that the more effective the executive the higher the stock price and the greater the executive's reward.[33]

There is also broad consensus that executive compensation packages in the late 1980s exhibited too low pay-performance sensitivity.[34] This view, combined with the 1993 Omnibus Budget Reconciliation Act which defined non-performance (cash) related compensation in excess of $1 million as unreasonable and therefore not deductible as an ordinary business expense for corporate income tax purposes, led boards to adopt greater use of stock-based (and tax deductible) compensation instruments. By the end of the 1990s, the typical CEO of a large U.S. corporation received approximately 60% of the total pay in the form of stock options and/or stock grants. The total CEO compensation among the Standard & Poor 500 companies averaged in excess of $10 million at the end of the decade, a historically high average. The "say on pay" movement, which began to gain political momentum in the U.S. in the early 1990s, was also fueled by reports of extreme pay packages in excess of $100 million in companies like Global Crossing, Qwest Communications, Tyco International, Citigroup, Hewlett-Packard, and others.

As of today, a number of legislative initiatives in addition to EESA and ARRA have say on pay provisions. For example, on March 19, 2009, the House of Representatives passed without amendments and sent the Senate a Bill "To impose an additional tax on bonuses received from certain TARP recipients". The Bill, introduced by Rep. Charles Rangel, has been placed on the Senate Legislative Calendar. In May of 2009, Senators Schumer (D-NY) and Cantwell (D-WA) introduced the Shareholder Bill of Rights Act of 2009 (S. 1074). On July 1, 2009, the SEC published Proposed Rule: "Shareholder Approval of Executive Compensation of TARP Recipients" pursuant to EESA's section 111(e) as amended by ARRA, which requires TARP recipients to provide a nonbinding shareholder vote on the compensation of the executives whose compensation is required to be disclosed under SEC disclosure rules. On August 1, 2009, the House of Representatives passes a Bill (H.R.3269 - Corporate and Financial Institution Compensation Fairness Act of 2009) to curb executive pay (presented by Democrat Frank Barney). On November 10, 2009, Sen. Christopher Dodd, chairman of the Senate Committee on Banking, Housing and Urban Affairs, circulated a discussion draft proposing legislation aimed at reforming the financial sector (the "Restoring

[33] For a recent survey of the literature on executive compensation, see Rajesh K. Aggarwal, "Executive Compensation and Incentives," in B. Espen Eckbo (ed.), *Handbook of Corporate Finance: Empirical Corporate Finance*, Volume 2 (Elsevier/North-Holland Handbook of Finance Series), Ch. 17, 498-538 (2008).

[34] See Michael C. Jensen and Kevin J. Murphy, "Performance-Pay and Top Management Incentives," *Journal of Political Economy* 98, 225-264 (1990).

American Financial Stability Act of 2009").

The paradox of the say on pay movement is that, although there is little doubt that some pay packages are excessive, it is doubtful that shareholders are in a position to improve the compensation system. If the theory is that boards get it wrong, it is unclear why one should believe that shareholders will get it right. From the point of view of economic theory, the market wage of a CEO reflects the CEO's marginal productivity (value added) in the company. While it is possible to get a reasonable estimate of the value-added of Michael Jordan joining the Chicago Bulls (which may be why no-one seems to argue that sport superstars like Jordan and others are overpaid), identifying the marginal productivity of a CEO who works in a large organization is much more difficult. Awarding millions of dollars in executive pay—without being able to forcefully communicate to investors why the CEO is supposed to be worth as much—guarantees a demand for "say".

It should be obvious that one cannot design CEO pay structures by a shareholder vote. The main value of the say on pay movement is not in its contribution to setting pay, but in forcing boards to work harder at researching, negotiating, and communicating its pay policies to shareholders. As indicated above, shareholder mistrust of the board is also a direct result of inefficiencies in the director election mechanism. Thus, a benefit of reforming the director election system is to lower demand for shareholder say on pay as a way to force boards into acting in shareholder interests.

5 Summary recommendations

The government as a shareholder ought to:

(1) play a proactive role in developing best corporate governance practices (Section 1),

(2) support a policy of maximizing shareholder value (Section 2.1),

(3) promote transparency and a focus on minority shareholder rights protection (Section 2.2),

(4) organize the management of its ownership positions in an independent entity (Section 3.1),

(5) support director election reform (Section 4.1),

(6) support the elimination of staggered boards (Section (4.2),

(7) support a separation of the positions of CEO and board Chairmanship (Section 4.3),

(8) support compensation policies that based on sophisticated empirical analysis of CEO value added (Section 4.4).

EXHIBIT 1

Corporate Governance Statutory and Best Practice Framework for TARP Recipients

Overall Corporate Governance Framework

State and Federal laws, Stock Exchange listing rules, corporate governance standards

US Corporate Governance Statutory Framework

Delaware General Corporation Law (as amended)
Federal securities law:

- *Securities Act of 1933 (as amended)*
- *Securities Exchange Act of 1934 (as amended)*
- *Sarbanes–Oxley Act of 2002*

Emergency Economic Stabilization Act of 2008 (EESA)
American Recovery and Reinvestment Act of 2009 (ARRA)

- TARP Standards for Compensation and Corporate Governance

Stick Exchange Listing Rules

- *NYSE Corporate Governance Listing Standards (Section 303A)*
- *NASDAQ Corporate Governance Requirements (Rule 5600 Series)*

Examples of Corporate Governance Standards in the US

Council of Institutional Investors (CII), *Corporate Governance Policies (2009)*
Teachers Insurance and Annuity Association - College Retirement Equities Fund (TIAA-CREF), *Policy Statement on Corporate Governance (2004)*
California Public Employees' Retirement System (CalPERS), *Global Principles of Accountable Corporate Governance (2009)*
National Association of Corporate Directors (NACD), *Key Agreed Principles to Strengthen Corporate Governance for U.S. Publicly Traded Companies (2009)*

Examples of Global Corporate Governance Standards

Organization for Economic Co-operation and Development (OECD):

- *Principles of Corporate Governance (2004);*
- *Guidelines for Multinational Enterprises (June 2000);*
- *Guidelines on Corporate Governance of State-owned Enterprises (2005)*

United Nations (UN) Global Compact's Ten Principle
Unite Nations (UN) Principles for Responsible Investment (PRI)
International Corporate Governance Network (ICGN):

- *Statement on Global Corporate Governance Principles (2005);*
- *Statement of Principles on Institutional Shareholder Responsibilities (2007)*
- *Remuneration Guidelines (2006);*

Canadian Coalition for Good Governance (CCGG):

- *Corporate Governance Guidelines for Building High Performance Boards (2005)*

Mr. KUCINICH. I want to thank you, Professor, for your testimony.

I want to acknowledge the presence of committee members, ranking member, Mr. Jordan, Mr. Cummings of Maryland, Mr. Tierney of Massachusetts. Thank you all for being here.

Professor Verret, you may proceed with your 5 minute testimony.

STATEMENT OF J.W. VERRET

Mr. VERRET. Thank you, Chairman Kucinich, Ranking Member Jordan, and distinguished members of the committee. It is a privilege to testify in this forum today. My name is J.W. Verret. I am an assistant professor of law at George Mason and a senior scholar with the Mercatus Center. I also had the opportunity to consult for the Special Inspector General for TARP and the GAO on a corporate governance audit of TARP firms.

The past year has seen some unprecedented events in the history of American business. Through the bailout, our Government has become a controlling shareholder in many bedrocks of the business community.

Some political leaders have argued that since the Government owns these companies, it should seek to control their day-to-day business decisions. The reason I have joined you today is to explain why this view is not only misguided, but downright dangerous to the taxpayers' investment, as well as the pension funds and retirement funds of ordinary Americans.

Government ownership in private companies perverts the accountability of both Government and business. To understand why, we must appreciate that Government leaders and business leaders are held accountable by entirely different means. Governments are accountable to voters based on their ability to get re-elected; business leaders are held accountable by their ability to maximize profits for their shareholders. And the overwhelming majority of those profits for shareholders go to Main Street investors. Working Americans like teachers, firefighters, policemen, all depend upon this mechanism to fund their retirements.

Maintaining a buffer between short-term political interests and long-term financial soundness is absolutely critical. The economic evidence from around the globe is overwhelmingly clear that political ownership of private banks and financial companies results in lower GDP growth, increased need for subsequent government bailout, and politicized lending practices. I am concerned that we may see politics driving business decisions, such as TARP banks encouraged to subsidize lending in battleground States, for example.

The Treasury Department owns one-third of Citigroup. This fact has given the Government enormous power over Citigroup's operations. Consider the case of Andrew Hall, a legendary commodities trader at Citigroup, who generated an average of $250 million a year over the last 5 years for Citigroup and Citigroup's investors, including their investors now, which would be the taxpayer and which would be the pension funds and retirement funds of everyday Americans.

Mr. Hall was paid a percentage of that annual $250 million he generated for Citigroup. His annual salary was definitely high, but it was an entirely performance-based package. The pay czar decided that Mr. Hall's salary was just too large to justify to populous pressures, so Citigroup was forced to sell off Mr. Hall's division at a deep discount. Losing Andrew Hall will cost Citigroup hundreds of millions of dollars per year, and that cost will fall on Citi's investors, including the American taxpayer. But the decision was politically advantageous to the executive branch in the short-term, so it was inevitable because of the Government's share ownership.

The case of General Motors is even worse. GM has been pressured by political leaders, responding to alliances with failed automobile dealerships, to keep those failed dealerships open. Political leaders have exerted pressure to force GM to overpay on its shipping contracts so that truckers using politically favored unions, like the Teamsters, win the bids. Make no mistake, the cost of this crony capitalism is borne by the American taxpayer. Government shareholders don't have to play by the same legal rules as the rest of us, a fact which will strain the governance mechanisms of our capital markets at a time when they are already in crisis.

Bipartisan legislation pending in the House and Senate stand to address these problems and create a buffer between the taxpayers' investment and political leaders who would use that investment to pander to special interests. The TARP Recipient Ownership Trust Act of 2009, introduced in the House by Congressman Bacchus and in the Senate by Senators Warner and Corker, would require the Secretary of the Treasury to place ownership of TARP investments in trust to be held on behalf of the American people. The act would task the trustees of that trust, appointed by the President, with a fiduciary duty to maximize the value of the investment, and it would include a sunset provision to get out of TARP investments by December 2011.

The prospect of the Government actively voting their shares in TARP recipients holds grave risks. Political leaders have stuffed the Federal budget with pork barrel projects at great cost to the American taxpayer. We must not permit them to do the same with the private budgets of private banks. If we do, the taxpayer will be left holding the tab.

Thank you for the opportunity to testify.

[The prepared statement of Mr. Verret follows:]

MERCATUS CENTER
GEORGE MASON UNIVERSITY

THE U.S. GOVERNMENT AS DOMINANT SHAREHOLDER: HOW SHOULD TAXPAYERS' OWNERSHIP RIGHTS BE EXERCISED?

TESTIMONY

J.W. Verret, Assistant Professor
George Mason University School of Law

Before the House Committee on Oversight and Government Reform,
Subcommittee on Domestic Policy

10:00 a.m. on Wednesday, December 16, 2009
2154 Rayburn House Office Building

Chairman Kucinich, Ranking Member Jordan, and distinguished members of the Committee, it is a privilege to testify in this forum today. My name is J.W. Verret. I am an Assistant Professor of Law at George Mason Law School, a Senior Scholar at the Mercatus Center at George Mason University and a member of the Mercatus Center Financial Markets Working Group. I also direct the Corporate Federalism Initiative, a network of scholars dedicated to studying the intersection of state and federal authority in corporate governance.

The past year has seen some unprecedented events in the history of American business. Through the bailout our government has become a controlling shareholder in Citigroup, AIG, Bank of America, Fannie Mae, Freddie Mac, General Motors, GMAC, and a host of other TARP recipients.

Some political leaders have argued that since the government owns these companies, it should seek to control their day-to-day business decisions. The reason I have joined you today is to explain why this view is not only misguided, but downright dangerous to the taxpayer's investment as well as the pension funds and retirement funds of ordinary Americans. For more on this issue please see my paper forthcoming in the Yale Journal on Regulation, *Treasury Inc.: How the Bailout Reshapes Corporate Theory and Practice.*

Government ownership in private companies perverts the accountability of both government and business. To understand why, one must appreciate that government leaders and business leaders are held accountable by entirely different means. Governments are accountable to voters based on their ability to get re-elected by voters.

Business leaders are held accountable by their ability to maximize profits for their shareholders. And the overwhelming majority of those profits for shareholders go to main street investors. Teachers, firefighters, policeman, and other working Americas depend upon this mechanism to fund their retirements.

Maintaining a buffer between short-term political interests and long-term financial soundness is critical. The economic evidence from around the globe is overwhelmingly clear that political ownership of private banks and financial companies results in lower GDP growth, increased need for government bailout, and politicized lending practices.

For instance, in Italy, banks with government ownership lend at lower interest rates in the South, as that region is the Prime Minister's base of support. I am concerned that we may see TARP banks encouraged to subsidize lending in battleground states.

The Treasury Department owns one-third of Citigroup. This fact has given the government enormous power over Citigroups's operations. But holding shares alongside government shareholders is a particularly dangerous proposition for shareholders. Consider the case of Andrew Hall, the legendary commodities trader who ran the Phibro unit of Citigroup.

Mr. Hall was a banker who produced an average of $250 million per year over the last 5 years for Citigroup and its investors. He was paid a percentage of what he earned for the bank. His annual salary was high, but was an entirely performance-based pay package.

The pay czar decided that his salary was just too large to justify to populist pressures, and so Citigroup was forced to sell off his Division at a discount. Make no mistake, losing Andrew Hall will cost Citigroup hundreds of millions of dollars per year. And that cost will fall on Citi's investors, including the taxpayer and pensioners who invest in Citi. But the decision was politically advantageous to the executive branch in the short term, and so it was inevitable.

The case of General Motors is even worse. GM has been pressured by political leaders, responding to alliances with failed automobile dealerships, to keep those failed dealerships open. Political leaders have exerted pressure to force GM to overpay on its shipping contracts so that truckers using politically favored unions, like the Teamsters, win the bids. Make no mistake, the cost of this crony capitalism is borne by the American taxpayer.

In corporate and securities law, shareholders with control over companies face the same corporate and securities liability to other shareholders as the board of directors and the executives of the company. Government shareholders that exercise control, however, have sovereign immunity from liability. The Treasury department is also given an express exemption from insider trading laws. Government shareholders don't have to play by the same rules as the rest of us, a fact which will strain the governance mechanisms of the capital markets at a time when they are already in crisis.

Bi-partisan legislation pending in the House (H.R. 3594) and Senate (S. 1280) stand to address these drawbacks and create a buffer between the taxpayer's investment and the politicians who would use that investment to pander to special interests. The "TARP Recipient Ownership Trust Act of 2009," would require the Secretary of the Treasury to place ownership of TARP investments in trust to be held on behalf of the American people. The Act would task those trustees with a fiduciary duty to maximize the value of that investment. It would also include a sunset provision requiring that the Treasury sell its investment in these companies by December 24, 2011.

The prospect of the government actively voting their shares in TARP recipients holds grave risks. Political leaders have stuffed the federal budget with pork barrel projects at great cost to the American taxpayer. We must not permit them to do the same to the budgets of privately held companies. If we do, the taxpayer will be left holding the tab.

Mr. KUCINICH. Thank you for your testimony, Professor.

The Chair recognizes Ms. Simpson. You may proceed for 5 minutes.

STATEMENT OF ANNE SIMPSON

Ms. SIMPSON. Thank you. Good morning. First of all, many thanks to the committee chairman, the ranking member, and the honorable members for an opportunity to testify before you. My name is Anne Simpson. I am the senior portfolio manager for Global Equities, as the chairman kindly mentioned, and, as such, I am responsible for CalPERS corporate governance program.

As you will be aware, CalPERS is the largest public pension fund in the United States. We have assets of some $200 billion that we are responsible for, which we invest on behalf of 1.6 million beneficiaries.

As a long-term global investor in more than 9,000 public companies, we have both a direct and an indirect interest in the success of the TARP program. We have a direct interest because, regardless of the reduced values that we still see in these companies, we hold well in excess of $7 billion in both debt and equity in recipient companies. We have an indirect interest, or I should say perhaps a systemic interest in the success of the TARP program because CalPERS is as close to being a universal and permanent owner as it is possible to be. We need the system to work. We rely upon this critical sector of the economy functioning as much as any others.

My role here today, though, is to share something of CalPERS' experience in its corporate governance program for the following reason: We have taken governance very seriously, we devote resources to it, and we have seen, across our portfolio, that wherever capital is allocated, governance can make a difference to the mitigation of risk and also to the enhancement of returns.

Specifically, I would like to just share with you what we do in addressing problems at financially troubled companies and how we use a governance framework to approach the difficulties those companies have.

And, finally, I would like to say something about what we consider best practice to look like in this field; in other words, what we have learned about what can work and what doesn't work, and how we hope that the Government, as shareowner, will join the community of responsible shareowners in engaging with governance reforms.

First, though, our experience on using governance as an approach to dealing with financially troubled companies. CalPERS, for over 15 years, has developed a program around the theme of the focus list. This is where companies in the most trouble, by sector, are identified each year on a number of screens. What we do is then analyze the governance of the companies to see where we, as an active and engaged owner, can have a positive impact on the company's health. We look at a range of issues, from the governance structures to the quality of the board, and in combination the results warrant some attention.

Our external consultants will show up, monitor the performance of these companies each year, and their conclusions are that over the 5-year period of the engagement—note that is a fairly substantial period of time—these companies have been seen to outperform their benchmark by some 15 percent. The full details are referenced in our written testimony.

We are firmly of the view that this form of transformation is something to be considered with TARP recipient companies, and we have conviction and we have, we feel, convincing evidence that transparency and accountability foster risk mitigation and value creation not just for TARP recipients, but we see this as important for the entire market.

The issues that we think important are set out in our written testimony, but we want to focus on the principles of optimizing shareholder returns—maximizing is a word that perhaps suggests risk can be traded off for returns—accountability to the owners; transparency; equitable treatment of minorities; and a focus on compensation for long-term results, including a concern with risk.

Finally, we want to ensure that boards are led by not only independent directors, but those who have the skills and experience—and we would emphasize diversity in this context—in order to break through some of the group think which bedeviled the companies that got into difficulty.

Finally, governance reform is no guarantee, but it gives us a framework to hold boards accountable, and we urge the Government, as a fellow shareowner, to help us develop and use the tools we need to hold these boards accountable.

Thank you.

[The prepared statement of Ms. Simpson follows:]

Testimony
Of
Anne Simpson
Senior Portfolio Manager
Global Equities
California Public Employees Retirement System,
On Shareholder Rights and Financial Market Stabilization

Domestic Policy Subcommittee
Oversight and Government Reform Committee
Wednesday, December 16, 2009
2154 Rayburn House Office Building
10:00 a.m.
"The Government as Dominant Shareholder: How Should the Taxpayers' Ownership Rights be Exercised?"

Chairman Kucinich and Ranking Member Jordan and Members of the Subcommittee:

Thank you for the opportunity to testify before you in order to share our experience in corporate governance as you consider the issue of shareholder rights and financial market stabilization under the Troubled Assets Relief Program (TARP).

I am here to represent the California Public Employees' Retirement System (CalPERS), the largest public pension fund in the United States. CalPERS is responsible for over $200 billion in global assets, which include equity and debt positions in more than 9,000 public companies worldwide. CalPERS invests these assets on behalf of more than 1.6 million beneficiaries in order to fund their retirement and health benefits.

CalPERS is fundamentally a long-term, fiduciary investor, with a systemic interest in financial market stability. We consider the reforms being proposed by the House and Senate to be vitally important to ensure the transparency and accountability which are needed to restore stability.

CalPERS has both a direct and indirect interest in the successful execution of the Troubled Asset Relief Program (TARP):

- Direct, because we own over $7 billion in debt and equity in financial sector TARP recipient companies. This number reflects a loss of more than 40 percent in the value of equity holdings in this sector alone since the crisis hit;

- Indirect, because CalPERS faced devastating financial consequences if markets collapsed. TARP funds played an essential role in strengthening balance sheets at a vital moment and in a critical sector. As equity investors we were diluted; as debt holders, we were given a life line.

We are now thinking ahead and considering how the exit from emergency can also foster a return to robust good health. There are many factors to consider here – but governance is fundamental.

As TARP funds are being repaid and the corporate governance provisions required by Treasury and its agent, the Special Master for Compensation, are withdrawn, the question of continuing governance reform for recipients and graduates of the TARP program is a focus of our close attention.

Here we draw upon CalPERS longstanding work in the field of corporate governance. At the core is our 15 years of experience engaging directly with financially troubled companies through our Focus List program. Through this work we have come to understand some of the critical elements.

We have strong conviction and some compelling evidence that governance reform underpins the mitigation of risk and the enhancement of returns.

CalPERS external pension consultants, Wilshire Associates, have tracked the progress of companies in the Focus List program since its inception. Their conclusion in a 2009 report to the CalPERS Board of Administration stated that after the first five years of engagement by CalPERS, the companies concerned averaged excess returns of 15 percent above their benchmark return on a cumulative basis. This result is all the more striking as the universe of companies on average came onto the Focus List with a collective underperformance relative to their benchmark of some negative 8 percent. [1]

The time period is important: These results were observed over a five-year period. Governance reform is a long-term engagement. We also would offer the caveat that there is no clear evidence that any isolated element in the Focus List program is the key. CalPERS engagement on the governance reforms itself is part of the value. In other words, the attention of owners in itself contributes to the process of renewal.

In short, the Focus List program offers an example of sustained, shareowner engagement around a clear governance framework being followed by a significant and sustained financial improvement.

We regard this experience as highly relevant to the governance reforms that are needed to foster transparency and accountability, not just for TARP recipients, but across the market.

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[1] The "CalPERS Effect" on Targeted Company Share Prices, Wilshire Associates Incorporated, July 31, 2009

We have no reason to consider that governance principles should be disregarded or downgraded by any shareowner for reasons of provenance.

Governance is intended to ensure the productive allocation of capital, with effective oversight for those responsible for this task. All providers of capital have an interest in this, regardless of their origin or type. Their financial goals may differ; for example, the time period or quality of return will vary according to need or liability. However, we do not see circumstances in which corporate governance fails to be relevant to risk and return.

We note that international guidelines have been developed that provide specific guidance for Government shareholders (reference here to the IMF and OECD guidelines, on state shareholding holdings). These are consistent with CalPERS Global Principles of Accountable Corporate Governance. As the Committee considers global best practices, we highlight the following from our CalPERS core principles:

1. **Optimizing shareowner return**: Corporate governance practices should focus the board's attention on optimizing the company's operating performance, profitability, and returns to shareowners. Compensation here plays a part and our comments are below.
2. **Accountability: Directors should be accountable to shareowners, and management accountable to directors**. To ensure this accountability, directors must be accessible to shareowner inquiry concerning their key decisions affecting the company's strategic direction. We specify detail in the shareholder rights section below.
3. **Transparency: Operating, financial, and governance information about companies must be readily transparent.** We have recently submitted our comments to the SEC on the need for expanding disclosure in the realm of critical areas such as risk management and board qualifications, diversity, and performance evaluation.
4. **Equitable treatment: All investors must be treated equitably, that is, according to the principle of one share, one vote.**
5. **Long-term vision**: Shareowners should encourage companies to resist short-term behavior by supporting and rewarding long-term superior returns.

These core principles translate into specific corporate governance best practices. We promote these through our engagement with companies, including Focus List companies, advocacy with policymakers, and through CalPERS proxy voting program. Full details can be accessed through CalPERS Corporate Governance Web site, which provides details about the largest 300 holdings in our U.S. portfolio.

Of particular relevance to the Committee's considerations of corporate governance best practices are the following, taken from the CalPERS Principles:

Board Independence and Leadership: Competence and Resources

CalPERS considers that a majority of the board of directors should be independent, and that the board should be chaired by an independent director.

We also consider that the board and its committees should have access to adequate resources to provide independent counsel, advice, or other tools which allow the board to perform its role in full. Where companies are operating in particularly complex or volatile environments, this is potentially a way to strengthen the board's competence and independence.

Board, Director and CEO Evaluation: Fostering Diversity and Critical Thinking

Boards need to develop a system for evaluating the performance of its directors, assessed against strategic objectives. Each board should adopt and disclose a statement of its own governance principles and ensure these are re-evaluated on an annual basis.

CalPERS also considers that each board must establish and disclose the mix of attributes, experiences, diverse perspectives, and skill sets that are most appropriate for the company. In this we include core attributes, such as accounting or finance skills and experience, but other areas are also relevant, such as leadership, strategic planning, and risk management.

With each director nomination, the board should consider the issue of continuing director tenure, as well as board diversity, and take steps as necessary to ensure that the board maintains openness to new ideas and a willingness to critically examine the status quo.

CEO succession planning is critical. The board should lead and be accountable for the development, implementation, and review of its succession plan. We also want to see disclosure made to shareowners on the process that has been established. This should apply not just to the key executive(s) on the board, but also to the directors themselves.

Executive and Director Compensation

Compensation programs are one of the most powerful tools available to the company to attract, retain, and motivate key employees to optimize performance targeted at providing sustainable, long-term shareowner returns. The financial crisis has also shown what damage can be done through poor alignment of risks.

Well-designed compensation programs will be adequately disclosed and management aligned with the long-term economic interests of shareowners.

CalPERS believes shareowners should have an effective mechanism by which to periodically promote substantive dialogue, encourage independent thinking by the board, and stimulate healthy debate.

CalPERS considers that companies should submit their executive compensation policies to shareowners for non-binding approval on an annual basis.

We also consider that performance assessments should be carried out by wholly independent compensation committees, who consider peer relative performance against multiple metrics. Companies should be able to recapture incentive payments which were made on the basis of activities that were later found to have been a material misstatement of results. This is colloquially known as a 'claw back policy.'

The comment on the long-term cannot be over emphasized. If rewards are structured to pay out before risks are realized, then regardless of the scope of a claw back policy, the compensation plan is misaligned.

CalPERS supports disclosure of the incentive compensation policy below board and senior executive level as this relates to risk management.

Integrity of Financial Reporting

Risk management is an integral part of a company's internal controls. Both external and internal parties play a role: Management, the board, and the external auditor.

CalPERS wants to ensure oversight by shareowners through the ability to ratify or reject the external auditor annually. Also, we support the audit committee requiring the auditor's opinion to include commentary on any management assertion that the system of internal financial controls is operating effectively and efficiently, and that financial information is reliable as of a specific date, based on an integrated framework of internal controls. This reporting needs to be illuminating, and not by rote.

We also consider that in addition to the skill sets for audit committees set out in regulation S-K and listing requirements, boards should consider in their annual assessments the effectiveness of the audit committee and designated financial experts. This consideration ties in with our concern to see more useful and comprehensive reporting by boards on their performance goals and on the skills sets and experience needed to achieve them.

Corporate Responsibility

CalPERS expects companies in its portfolio to conduct themselves with propriety and a clear view toward responsible corporate conduct. If improper practices arise, companies should move decisively to eliminate these and introduce adequate controls to prevent a recurrence. A level of performance above minimum adherence to the law is generally expected.

Shareowner Rights: The Specifics

CalPERS considers that providing shareowners with the rights to ensure accountability is a necessary and effective complement to legal and regulatory requirements. Specifically we consider that companies should adopt the following standards in support of shareowner rights.

Majority Vote Requirements

Shareowner voting rights should not be subject to supermajority voting requirements. A simple majority of proxies cast should be able to amend the company's governing documents and remove a director with or without cause.

Majority Vote Standard for Director Elections

In an uncontested director election, a majority of proxies cast should be required to elect a director. Resignation should be required for any director who receives a withhold vote greater than 50 percent of the votes cast.

Shareowners should have the right to cumulate votes in a contested election of directors.

Special Meetings and Written Consent

Shareowners should be able to call special meetings or act by written consent.

Sponsoring and Implementation of Shareowner Resolutions

Shareowners should have the right to sponsor resolutions, and if approved by a simple majority of proxy votes case, they should be implemented by the Board.

Takeover Defenses

Companies should prohibit 'greenmail' and allow shareowners to approve all 'poison pills.'

Annual Director Elections

CalPERS considered that 'staggered boards' should be reformed in favor of annual election for each director.

Broker Non-Votes

Broker non votes should be counted for quorum purposes only.

Proxy Access

Shareowners should have the ability to nominate candidates for consideration by their fellow investors by placing proposals on the proxy. We regard this as the single most important measure that could be provided to significant, long-term owners. CalPERS has been vocal in its support for the SEC's rule making efforts on this issue, and applauds the House and Senate for endorsing the SEC's authority to introduce reforms. To allow management to use the proxy for proposing directors, and to exclude owners, removes the single most important channel for ensuring accountability.

Conclusion

CalPERS has extensive and longstanding experience in corporate governance. We have seen that promoting transparency and accountability fosters sustained value creation and supports effective risk mitigation. While governance reform provides no guarantee, it gives us a framework to hold boards accountable and bolster the overall effort to restore market sustainability. In short, we urge government as a fellow shareowner to help us develop and use the good governance tools we need to hold corporate boards accountable, embrace corporate governance best practices and thereby ensure alignment of interests as a shareowner. Thank you for the opportunity to share our views on this vitally important element of financial market reform. I would be glad to provide additional comment on any of the points raised and to answer questions.

Mr. KUCINICH. Thank you, Ms. Simpson.

The Chair recognizes Mr. Tonelson. You may proceed for 5 minutes.

STATEMENT OF ALAN TONELSON

Mr. TONELSON. Mr. Chairman, ranking minority member, Members Cummings and Tierney, thank you so much, on behalf of the 1,900 member companies of the U.S. Business and Industry Council, for this opportunity to testify.

Given the current economic crisis, which shows no real signs of easing whatever, this subject of this hearing could not be more important. Yet, USBIC's member companies are very encouraged by this committee's recognition that the ongoing debate about improving the Government's performance as a dominant shareholder, or even major player, in critical industries must be dramatically broadened. It is of course important to achieve greater transparency and greater accountability in rescues and bailout programs. It is of course important to develop sensible exit strategies. But the overriding challenges facing the U.S. Government in this shareholder role is how to ensure that it can not only support, but spearhead a viable recovery strategy for the entire economy.

Since the crisis ultimately stems from the American economy's failure in recent decades to produce nearly as much as it consumes, and its decision to fill that gap by incurring dangerous levels of debt. A viable recovery strategy clearly must focus on greatly increasing production relative to consumption; that is, the genuinely productive, wealth-creating sectors of the American economy need to start reversing the recent pattern and start to grow more rapidly than the rest of the U.S. economy. And those productive sectors are dominated by manufacturing.

Now, clearly, our 1,900 members have a huge stake in helping to achieve this reorientation; they are manufacturers. They have a longstanding commitment to creating jobs, and sponsoring innovation, and spurring productivity, and boosting production in this country. Think of them as Main Street manufacturers.

By the same token, they will be prime victims of Washington's continued clinging to an outmoded economic strategy that has made this U.S. economy dangerously finance-heavy. But if this painful recession and this economic crisis teaches us nothing else, it has to teach us that everyone else will be hurt. Everyone else in this economy, every single actor will suffer unless this reorientation is actually completed.

As my written statement details, since the recession's official beginning in December 2007, the economy has tragically moved farther from this goal of being more production-oriented, not closer to it. Notably, inflation-adjusted manufacturing output has fallen four times faster than the rest of GDP. Perhaps even more alarmingly, our manufacturing capacity—not capacity utilization, but the capacity itself—is shrinking at the fastest rate ever.

Because our economy's sickness has developed over many years, the TARP and the rest of our economic recovery strategy—the same recovery strategy approved by the White House and endorsed by this Congress—cannot legitimately be blamed for most of this regression. But they haven't helped either, and show little promise of actually doing so. The problems reflect much more than the jaw-dropping gap between Government support for finance and Government support for U.S.-based manufacturing. And, of course, Government support for finance entails much more than simply the TARP program. Much more.

The problems reflect the very goals apparently set by the administration for finance and for an automotive sector that is a bellwether for the rest of manufacturing. Let nobody be under the misimpression that the automobile industry is the only industry in the American manufacturing sector that has run into major structural problems. That is far from true. Nothing could be less true. The goal for finance seems to be encouraging this sector to return to its pre-crisis scale and full range of activities, productive or not, with only modest structural and regulatory change.

The first apparent goal for the U.S. auto industry seems to be managed contraction, managed dramatic contraction, and even transition to niche-producer status. Not only is this strategy likely to contribute to the further shrinkage of the entire manufacturing sector, it flies in the face of everything known today about the prerequisites for automotive competitiveness. A second main goal seems to be turning the auto industry from a high-wage industry into a much lower wage industry. How in the world can that help middle class families repair their own finances without growth slowing belt tightening of a dramatic nature?

How to ensure that Government, as shareholder, helps refocus our economy on wealth creation again? My statement makes numerous recommendations, but I will briefly focus on two.

These are two that our—am I short of time?

Mr. KUCINICH. I appreciate your testimony. Your time has expired——

Mr. TONELSON. I am sorry.

Mr. KUCINICH [continuing]. But if you would like to just wrap it up and just tell us your two points.

Mr. TONELSON. OK. First of all, the Government shareholding role must be coordinated with the entire recovery strategy actively and, second, policy success will require much better, much more detailed, and much more timely data about the economy as a whole and the manufacturing sector as a whole. Currently, too often, policymakers are flying blind.

[The prepared statement of Mr. Tonelson follows:]

Testimony
Of
Alan Tonelson
Research Fellow
U.S. Business and Industry Council

Domestic Policy Subcommittee
Oversight and Government Reform Committee
2154 Rayburn HOB
Wednesday, December 16, 2009

"The Government as Dominant Shareholder: How Should Taxpayers' Ownership Rights be Exercised?"

Good morning, Mr. Chairman and Ranking Member Jordan and Members of the Subcommittee. On behalf of the 1,900 member companies of the U.S. Business and Industry Council, I am honored to testify at this hearing on managing the federal government's new shareholder rights under the Troubled Asset Relief Program to help spur economic recovery.

Given the continuing crisis afflicting the U.S. economy – which no major authorities believe can perform acceptably without continuing, indefinite, record government stimulus – few issues facing the nation today matter more. In this vein, our organization is especially grateful for your interest in our views. Our members predominantly are domestic manufacturers. They represent a wide range of industries, but they have always been united in their determination to generate wealth, innovation, and good jobs in this country – not China or Mexico or India. As such, they and companies like them are central to any successful recovery strategy pursued by our nation. For the only way to restore genuine health to our debt-addicted economy is for America to start producing more than it consumes, and manufacturing overwhelmingly dominates the economy's productive sector.

The flip side of this insight is true as well. If Washington continues its long-time neglect of the productive domestic activity embodied by domestic manufacturing, and continues abetting or ignoring the stagnation and now decline of industrial production and employment, our overspending and over-borrowing will need to continue in order to maintain U.S. living standards. Therefore the hole we have dug for ourselves will only deepen – that is, as long as the rest of the world, which supplies so much of our credit, keeps playing along. Our member companies – who make most of their money and create most of their jobs by supplying much larger manufacturing companies greatly infatuated with offshoring production and jobs – will be leading victims of continued status quo economic strategies. But ultimately, none of the U.S. economy will escape their ruinous consequences.

The federal government's new role in key sectors of the economy provides an opportunity that must not be missed to spark the fundamental course change needed for recovery. After all, the U.S. government is now a major shareholder in gigantic finance companies – including those that led the wave of crackpot innovation that contributed so significantly to the crisis. And it plays the same role in the remaining U.S.-owned share of the automobile industry – whose troubles epitomize how Washington has undermined domestic manufacturing, and continues to set the stage for failure.

As a result, the most important objective for the government's new shareholder role must be to spearhead the reorientation of America's economy from one based mainly on rearranging and leveraging wealth already created, to one based mainly on creating new wealth in the first place. Indeed, this aim must now organize all of the federal government's economic policies, including its procurement policies and its efforts to promote wholly new industries, like so-called green manufacturing.

Tragically, under both the Bush and Obama administrations, Washington's performance as shareholder has served mainly to buttress the U.S. economy's current, failed, finance-heavy structure.

I

The critical measure of America's progress in overcoming the current crisis is not the reinvigoration of Wall Street, the restoration of ostensibly normal, pre-crisis levels of credit-creation; the return of ostensibly normal, pre-crisis levels of consumer spending; or even the restoration of economic growth and job creation. As should be obvious by now, flooding the economy with supposedly free money can eventually accomplish most or even all of these goals. But unless everything learned to date in human history is completely wrong, none of these accomplishments will be sustainable.

Genuine recovery will have begun when the productive sector of the U.S. economy – and the manufacturing sector that dominates it – starts growing fast enough to enable significant repayment of America's debts without requiring a significant fall in the country's living standards. Achieving this goal means that domestic manufacturing must grow significantly faster than the rest of the economy, and reverse the trend of recent decades in which it has fallen as a share of gross domestic product. The more relative manufacturing growth can be generated, the less living standards will need to fall to permit the repair of our national finances.

My testimony will focus on growth – i.e., production – rather than on jobs for two main reasons. First, the employment situation in general, and in manufacturing in particular, is already well known. No member of this subcommittee needs further briefing on that score. Second, and more important, although creating many more high-paying manufacturing jobs for working families is essential for real recovery, the vital prerequisite for job creation is restoring the health domestic manufacturing industries and boosting their output. Without healthy, expanding industries, manufacturing job growth will never occur.

Yet the economy is moving in exactly the opposite direction. In 2008, for example, the economy overall contracted by 0.74 percent after accounting for inflation. The manufacturing sector, however, shrank by 2.74 percent. Manufacturing's contraction was not as fast as that of construction of finance. But those sectors of the economy were clearly bubble-ized to a ludicrous extent. Some of the economy-wide bubble-ization undoubtedly spilled over to manufacturing, but the benefits undoubtedly were minor.

These kinds of authoritative government figures are not available yet for 2009. But the best government data we do have shows no significant improvement. The Commerce Department's Bureau of Economic Analysis tells us that real GDP has shrunk by 1.15 percent so far this year (through the third quarter). We will not get comparable figures for manufacturing until mid-2010 – an issue to which I will return. But we do have the Federal Reserve's Index of Industrial Production. It shows that manufacturing has expanded in real terms through September of this year – but only by 0.43 percent.

The same data sources show that, since the recession's official beginning in December, 2007, manufacturing output has plummeted 13.68 percent in real terms. The rest of the economy has shrunk by 2.99 percent. In other words, the U.S. economy must start closing the longstanding performance gap between the wealth-creating sectors of the economy and the rest of the economy. Yet the gap keeps widening.

Another gauge of manufacturing's health that I've recently examined tells a similar story. The nosedive in manufacturing capacity utilization this year to historic (post-1948) lows has been closely followed. (We are now just over 2.5 percentage points above that historic low of 65.12 percent.) Much less noted have been the trends in manufacturing capacity itself – the wherewithal of America's domestic industrial base. During this recession, industrial capacity has fallen in absolute terms for only the second time since figures have been compiled (also 1948). The first time, incidentally, was not during the relatively painful recession of the mid-1970s nor during the relatively painful recession of the early 1980s. It took place right after the relatively mild downturn of 2001. But during this recession, capacity has diminished by more than three times as fast (by 1.05 percent vs. 0.29 percent) even though the current period of decline so far has been only half as long.

To be sure, this shrinkage no doubt in part reflects efficiency gains. But domestic manufacturers didn't start to become efficient in 2002 or in 2008. Therefore, it is reasonable to conclude that this capacity decline is another sign of structural weakness in domestic manufacturing.

II

So far, it has been difficult to find examples of the federal government using its shareholder role in private industry to encourage our country's urgently needed economic rebalancing. One obvious indicator is the whopping imbalance between resources devoted to the financial sector and resources devoted to the manufacturing sector. In fact, this imbalance permeates the Obama administration's recovery policy – and Congress' support for it.

Yet a neglectful attitude toward manufacturing is evident even in the government's specific shareholding activity. For example, this past summer, combined pressure from the United Auto Workers and some members of Congress appears to have forced General Motors to scrap its plans to increase significantly the number of vehicles it imports through 2014. Also last spring, Congress in the American Recovery and Reinvestment Act banned banks receiving TARP money from hiring immigrants who hold H-1B visas.

Yet note the source of these measures – not the Obama administration, but organized labor and Congress. Apparently it never occurred to the White House that the main purposes – indeed the only legitimate purposes – of rescuing GM and Chrysler from uncontrolled bankruptcy was to ensure the maximum possible amount of domestic automotive production and employment over a significant period of time. Certainly, the GM executives planning the import operation never got this message from the auto rescue task force, or from any other part of the administration. Indeed, there are still no signs that this message is being taken to heart; in October, former GM Chairman Fritz Henderson spoke publically of his plans to start sourcing more parts from Korea.

In fact, it is impossible to examine the auto rescue saga and find any thread of a coherent economic rationale – other than (a) hastily slapping a huge band-aid on a rapidly bleeding part of the economy (including, of course, the entire domestic automotive supply chain) at a time of particular peril, but then forgetting about how to encourage a genuine cure; or (b) assuming that GM and the new Fiat-owned Chrysler could remain competitive automotive producers as considerably downsized entities.

Clearly, maximizing domestic vehicle and parts production over time was not a priority – as we know from the official indifference not only to the ramped up importing, but to the extensive offshoring that has long been a mainstay of Detroit automakers' business models. Maximizing domestic automotive employment wasn't especially important, either, as is clear both from the indifference to offshoring and importing, and from the job cutbacks insisted by the administration as a condition of providing rescue funds. And the administration seems to lack any appreciation of the main value of automotive jobs – namely, the middle class lifestyles they have enabled huge numbers of working class Americans to lead. For the auto task force actively encouraged deep cuts in automotive wages and benefits. Meanwhile, the Fiat takeover of Chrysler – which had been German-owned for most of the last decade – shows that maintaining or promoting U.S. ownership has had no importance for the administration, either.

The band-aid rationale is understandable (if not remotely sufficient). But the administration's belief in the viability of what can only be called a mini-GM looks preposterous. For the last 20 years, vehicle and parts makers all over the world have been determinedly consolidating and seeking the greatest possible scale. Grow dramatically or die has been the mantra. Has this imperative suddenly vanished? Can GM really survive on its own as what looks like a niche producer – even though its niche won't exactly be in the Ferrari league?

Or is GM supposed to reach gargantuan proportions again once normality returns to the U.S. and world economies? If so, hope will have triumphed, not experience. For in normal times, GM (along with Chrysler and Ford, for that matter) were steadily losing share of the all-important U.S. market. Even assuming the company significantly raises its game over time, is the Obama administration also counting on its foreign competitors lowering theirs? Is the White House expecting new foreign markets, like China, to be the keys to GM's future? This expectation would inspire more confidence if GM were actually making serious money in China. It is not.

Alternatively, will the Detroit giant benefit from the Obama administration's planned export drive? Unfortunately, nothing known about foreign automotive markets indicates any interest in buying more products Made in America.

From the standpoint of the U.S. economy's health, the Obama administration's automotive strategy seems likeliest to leave the U.S.-owned vehicle industry in a position with striking similarities to its pre-bailout plight. GM will be able to play defense only – attempting to keep and then expand in its home U.S. market, but lacking any meaningful export prospects – versus foreign-owned rivals that can sell easily in their home markets and export freely to the United States.

The big change insisted on by the auto task force has been requiring GM to slash its labor costs and domestic production base. Talk about the low road to competitiveness. Why not simply force GM and Chrysler to pay Chinese-level wages and benefits? For good measure, the companies' regulatory burdens can be cut to Chinese levels, too. Their sales and exports would really take off then.

In sharp contrast to the administration's strategy of managed shrinkage for the U.S.-owned vehicle industry is its apparent game plan for finance. President Obama's hope for this sector of the economy evidently is for full recovery to its pre-crisis scale. Regulatory reforms are certain, to be sure. But nothing backed by the administration, or by significant numbers of legislators, seems to aim for or even envisage a significant reduction in either the volume of lending or the destination of lending. In fact, today's recovering financial sector is being slammed for not lending enough in toto, and not lending enough to classes of borrowers (homeowners and consumers in particular), who clearly have not been great credit risks.

American leaders in both parties seem to acknowledge that lenders' capital reserve requirements must be higher – at least in that portion of the financial world they are willing to regulate seriously. But they also want to leave a vast share of that world, and even the regulated portion, free to continue innovating, even though the economic record shows a tenuous relationship at best between recent financial innovations and healthy economic growth. After all, the main beneficiary of innovation in the financial sector was the financial sector itself. The rest of the economy grew unspectacularly during the early part of this decade – when financial innovation peaked – despite hitherto unprecedented government stimulus in the form of then-record low interest rates, and an equally dramatic swing in the federal budget balance from surplus to deficit.

Perhaps most important, neither the administration nor majorities in Congress seem interested in breaking up financial institutions that have been "too big to fail," or to prevent such behemoths from emerging in the future. As a result, whatever the final fate of the current TARP, it is difficult to believe that Wall Street risk-takers will worry that they have lost implicit government guarantees, and just as difficult to conclude that they are wrong.

Consistent with this indulgent position toward finance, the Bush and Obama administrations have showered literally trillions of dollars on the sector with virtually no conditions at all. This support, it must be remembered, stretches far beyond the TARP. It includes, for example, the various measures by the Federal Reserve that have enabled financiers to borrow money at literally zero percent – a cost situation unknown in other industries and highly conducive to profitability. It also includes the decision to pay off government-owned AIG's counterparties at 100 cents on the dollar – a decision that puts, say, Goldman Sachs' repayment of its TARP loans in a strikingly new, much less impressive, light.

The bottom line: More than a year after Washington dramatically expanded its influence over and acquired a significant stake in the American financial sector, this sector remains full of institutions whose failure could generate systemic risk, but that arguably enjoy a stronger, more obvious government guarantee than ever. It is hard to imagine a better formula for continued, massive, open-ended taxpayer support of the sector – even as it stays or becomes superficially prosperous enough to lobby effectively against fundamental change. As a result, it is hard to imagine an outcome less likely to produce the political will or the resources needed to spur the production-oriented economic recovery America needs, or to create a production-focused economy.

III

As suggested above, the policy debate over government's role as business shareholder has been far too narrow. The overriding objective should not be re-privatizing as soon as the emergency is thought to have passed, or even recouping the taxpayers' investment, as desirable as these goals appear or actually are. The overriding objective should be transforming enterprises owned by the government and industries it now dominates, either through ownership or aid, from sources of weakness and vulnerability in the economy to sources of enduring strength. More specifically, this goal requires the government's policies for these sectors to focus on significantly increasing the share of the U.S. economy represented by its genuinely productive, wealth-creating sectors – first and foremost, manufacturing.

Moreover, because this objective is economy-wide, its implementation must be economy-wide. Its reach must extend across the range and breadth of national economic policy. The entire effort to re-regulate and restructure the financial sector must be included. So must all federal procurement, "Cash for Clunkers"-like tax subsidy programs, and efforts to create new industries such as green manufacturing. And so must all dimensions of national economic policy, including tax policy, regulatory policy in every respect (e.g., environmental, occupational and product safety), education policy, immigration policy, labor policy, innovation policy, health care policy, and trade policy. Confining this massive rebalancing effort to explicit stimulus programs or bailout programs would not only ensure its failure, but prolong and possibly deepen the crisis itself.

The U.S. Business and Industry Council considers fundamental change in trade policy to be especially important for two main reasons. First, manufacturing trade dominates the nation's international trade flows, and is therefore central to any strategy for paying down the nation's debts. Second, in a world of thoroughly globalized economic activity, better managing America's relationship with this global economy is essential for ensuring that the benefits of stimulus programs mainly stay within America's borders, and for preventing investors and companies from exploiting cross-border labor, regulatory, and policy arbitrage opportunities.

Aligning policy behind the goal of such re-industrialization will of course require an unprecedented degree of policy coordination. For example, it makes little sense to restore consumer credit to pre-crisis levels if consumers have little choice but to spend most of their consumption dollars on imported goods and services – as is so often the case. Adjustments in incentives for domestic investment as well as in trade policy will undoubtedly be required to change this situation as quickly and as extensively as possible. It makes little sense to pour government funds into education improvements if the best students still face overwhelming temptations to prepare themselves for careers as hedge fund managers, rather than scientists or engineers or industrial executives. It makes little sense to put into place a cap-and-trade system for reducing greenhouse gas emissions if manufacturers remain free to supply the U.S. market from foreign production sites with no or few emissions limits.

Many schemes for improving policy coordination have been developed – both since the onset of the current crisis and since Americans first began worrying decades ago about faltering economic competitiveness. Many of these ideas have considerable merit. Rather than pick and choose among them, I would emphasize three requirements that will make or break any of them.

First, even the most cleverly devised bureaucratic organizational plan will fail without the political will to launch it and keep it firmly on track, and without filling key positions with creative, resourceful leaders and managers.

Second, as much attention needs to be paid to monitoring and enforcing the implementation of new rules and regulations as to formulating them. Monitoring and enforcement are of course relatively un-glamorous activities, but unless Washington does a much better job on these fronts, lasting progress will be elusive at best.

Third, even the best thought-out strategies will fall far short of the mark unless the federal government and the American people have far more information about the economy and about individual industries at their disposal in a much timelier manner.

Data collection and dissemination are possibly even less glamorous than regulation monitoring and enforcement, but no less vital. There is no doubt that the federal government, along with many state and local governments, has done an excellent job in posting economic data on-line. But further improvement is possible and necessary. For example, I previously mentioned that detailed sector-by-sector figures on economic growth come out six months late. Lengthy delay characterizes other key sets of data as well. The monthly trade statistics are released two months after the fact. Detailed industry-by-industry manufacturing output data are two years behind the times. Total factor productivity numbers and foreign direct investment figures suffer a similar lag.

These delays result not from incompetence in the data gathering and dissemination agencies. Far from it. They result predominantly from grossly inadequate funding for these agencies. No new federal expenditure would yield bigger dollar-for-dollar benefits than greatly increased appropriations for their operations.

Better funded statistics agencies would also be able to provide new sets of data that policymakers and the public urgently need – especially to boost the economy's productive sectors. For example, the American Recovery and Reinvestment Act contain significant Buy American provisions. These provisions contain considerable potential to increase demand for U.S.-made goods. But these provisions were enacted before Congress or the administration or the American people had any idea of what kinds of manufactures could be readily supplied by domestic producers, and in which industries adequate domestic production capacity simply doesn't exist. Therefore, it is impossible to determine how much domestic growth these Buy American provisions actually will promote.

Just as important, this information vacuum is preventing Washington from using the Buy American provisions to identify promising opportunities for recreating critical domestic industrial capabilities. Policymakers so far have acted content to leave vast gaps in the nation's production profile completely unfilled – a position that is disturbingly fatalistic and even defeatist.

Thanks to legislation requiring domestic content stickers for all autos and light trucks sold in the United States, it is possible to determine how much domestic growth was actually generated by the Cash for Clunkers program. But no such figures exist for appliances and home furnishings, even though a Clunkers-like program now exists for the former, and has been proposed for the latter. As a result, both programs have the federal government flying blind. Further, the Obama administration clearly intends to spend billions of dollars fostering the development of green industries. But does it possess the means to identify which green products are likeliest to be made at home and which abroad? Or what the domestic and foreign content levels of these products will be, wherever they are finally assembled? Absolutely not – which means that, like Clunkers, these expenditures and tax credits could easily wind up stimulating more growth and employment overseas than in the United States, increasing America's trade deficits and overall indebtedness in the process.

Some flaws in the federal government's economic statistics, however, stem not from inadequate resources, but from flawed methodologies that have proven stubbornly resistant to change. For example, politicians and commentators typically seize on the headline labor productivity figures released every month – with virtually no delay – as evidence of the U.S. economy's matchless strength and potential. Yet more than five years ago, the officials at the Bureau of Labor Statistics who compile these figures acknowledged under oath to legislators that these labor productivity figures could well be sending an entirely different and much less encouraging message.

At a series of early 2004 hearings on the subject organized by Rep. Donald Manzullo of Ill. before the Small Business Committee he then chaired, BLS officials admitted that labor productivity improvements could in part reflect increased production and job offshoring, not technological or managerial progress. The reason: The foreign labor content of U.S. goods – surely on the upswing by then – was not counted. All reductions in the U.S. labor content of these goods, whatever their cause, were automatically attributed to innovation. Incidentally, similar problems plague the more comprehensive total factor productivity numbers. The Obama administration has acknowledged the problem, too, and fixing it should be a high priority.

IV

This testimony contains some important criticisms of the government's record to date as a shareholder, and sketches out a very ambitious agenda for change. It is nothing less than a call for sweeping change in the fundamental strategy pursued by the U.S. government to deal with the economy. The political and turf obstacles will of course be formidable. So will the ideological obstacles and the more practical obstacles surrounding implementation. Even with the strongest will and best talent, putting this program into effect will be exceedingly difficult. But the nation's present and foreseeable circumstances demand no less. That is why we call them a crisis.

Mr. KUCINICH. Thank you very much, Mr. Tonelson, for your testimony.

The Chair recognizes Ralph Nader for 5 minutes. You may proceed, sir.

STATEMENT OF RALPH NADER

Mr. NADER. Thank you, Mr. Chairman and members of the committee.

It seems to be here in Congress the more important a hearing is for the people of this country, the less the press attends the hearings. It is kind of inverse proportion here. So you ought to be commended.

In my written testimony with Robert Weissman, I give a lot of examples of our principle thesis: that the corporations which have been bailed out came to Washington. They entered the political arena and you simply cannot say, from an American Enterprise Institute framework, that you have to have the rules of private enterprise when General Motors and AIG, etc., fell all over themselves to be bailed out by the American taxpayer.

So the question we are facing is proper political judgment when the Government is a common shareholder of considerable magnitude and when the Government also represents the taxpayer in terms of saving these companies, which have been characterized by colossal mismanagement, colossal recklessness with other people's money, and colossal self-enrichment. So it is the management failure that even tanked their own companies—although not necessarily their compensation plans—that brought them to Washington.

There has been very little attention paid to the procedural safeguards for Government bailouts. For many years, I have been urging Congress and the executive branch to establish procedural standards so these bailouts do not reflect secret edicts over weekends or dictates from the executive branch. The nature of the corporate State, that is, corporate government, what Franklin Delano Roosevelt told Congress in 1938, was fascism. That is the words he used. The corporate State requires concentration of power in one branch of government at the expense of the other two, and that branch is the executive branch.

This was illustrated by the weekend massive bailout of Citigroup, when Robert Rubin went down and met with Mr. Bernanke and Mr. Paulson, and emerged with a press statement on the following Monday with a $300 billion guarantee of Citigroup's toxic assets and a $45 billion investment by the taxpayers. There was no notice to the public, no congressional input or participation, no taxpayer standing was permitted to challenge this edict, no judicial review, no standards. In other words, let's face it, dictatorship.

This is a repudiation of the congressional authority under the Constitution. A lot of money was involved. A lot of money was obligated; it was done by the executive branch. Not even reaching the contemptuous four-page bill that Mr. Paulson sent to the Congress, where both Republicans and Democrats rebelled, which basically said give the Treasury all the authority, with no judicial review, plus $700 billion, thank you very much. So the procedural issue is very important here.

The substantive policies, of course, reflect the procedural standards. When you have bad procedures, when you have autocratic secretive procedures, you tend to get bad performance substantively, and our testimony illustrates that in some detail. But the major thesis of the testimony is that when the Government is a dominant or controlling shareholder not of its own asking, the Government has an obligation not to invest passively; it should use its ownership powers to clean up management and, mindful of its duty to safeguard taxpayer financial interest, it should also pursue statutory public interest mandates in areas such as consumer, environment protection, financial stability, and financial honesty. And that reflects, of course, the state of workers, the state of consumers, the state of investors, elaborated in our testimony.

Three quick examples. One is that the Government did not condition its bailout and equity infusion of AIG on the firm's credit default swap counterparties accepting a haircut. So it was basically not just a bailout of AIG, it was a bailout of Goldman Sachs and others. Again, very, very secretive; a stunning display of executive power without congressional participation.

The second quick example is the double standard that you mentioned, Mr. Chairman. It is really amazing how fast they move to bail out crooked and reckless companies in the financial industry, but then they really hang the manufacturers out to dry. Not that they don't deserve a strong hand, but the contrast is really stunning in terms of the inferred dependency that the executive branch believes the rest of the economy relies on the financial sector. This is delegation run awry, when the GM deal was negotiated not by Congress, not by the executive branch, but by a delegated secretive White House task force made up of Wall Street expatriots with little or no experience in the auto industry.

The other point I want to make is that people fall by the wayside here. The bankruptcy system now in the corporate area is a kangaroo court. Congress has to revisit corporate bankruptcy law. It is a prearranged, choreographed bankruptcy system where many interested parties are given no participatory roles or they are given arbitrary shortened participatory roles which are basically nominal.

Mr. KUCINICH. I would just ask that you wrap up your testimony.

Mr. NADER. Let me just end with this example.

Mr. KUCINICH. Thank you.

Mr. NADER. General Motors eliminated, under bankruptcy, its liability to victims of defective products it had sold before the bankruptcy. This is truly outrageous. This is a manifest injustice which is revealed by the person of Amanda Dinnigan, a 10-year-old girl from Long Island, New York, injured by the allegedly faulty seatbelt in a GMC Envoy that snapped her neck in a crash. Her father, an iron worker, estimates her health care costs at $500,000 a year. Her lost quality of life will obviously be tragic. That and hundreds of other cases were rubbed out by this bankruptcy court.

Only legislation can correct this manifest injustice to innocent victims of corporate defective merchandise.

Thank you.

[The prepared statement of Mr. Nader follows:]

Testimony
Of
Ralph Nader

Domestic Policy Subcommittee
Oversight and Government Reform Committee
2154 Rayburn House Office Building
Wednesday, December 16, 2009
10:00 a.m.

"The U.S. Government as Dominant Shareholder: How Should the Taxpayers' Ownership Rights be Exercised?"

Mr. Chairman and members of the Committee, thank you very much for inviting us to testify today.[1]

Today's topic is welcome and vital. Perhaps the most astounding feature of the trillions of dollars in public supports conferred on the financial industry in the past year is the government's failure to demand more than the tiniest forms of reciprocity. Thus we are this week subject to the spectacle of the President cajoling financial industry leaders to lend more or do a better job of modifying mortgages -- with virtually no acknowledgement that the industry continues to exist only because of unprecedented taxpayer supports.

In the cases of the most distraught firms, where loans, guarantees and other supports have been insufficient, the government has acquired equity shares. This position raises the same issues of reciprocity as the other government supports, but puts on the government a more affirmative burden. Shareholding brings with it the obligations and responsibilities of ownership, as well as opportunities. The thesis of our testimony is that, where it is a dominant or controlling shareholder, the government has an obligation not to invest passively. It should use its ownership powers to clean up management. Mindful of its duty to safeguard taxpayer financial interests, it should also pursue statutory public interest mandates in areas such as consumer and environmental protection and financial stability.

In this testimony, we first review the government acquisition of equity in three firms: AIG, Citigroup and General Motors. We then turn to recommendations for

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[1] Ralph Nader is a consumer advocate. Robert Weissman is president of Public Citizen, a nonprofit research, lobbying and litigation public interest organization with 150,000 members and supporters. Based in Washington, D.C. and founded in 1971, Public Citizen accepts no government or corporate funds. Weissman is co-author of a forthcoming paper from Corporate Ethics International that examines options for managing the government investment in Citigroup and from which this testimony draws in part.

how the government should manage equity positions in those firms, and more generally. We conclude by considering the terms on which the government should exit an equity position.

The Government Acquisition of Controlling Stakes in Three Firms

Although the government obtains very substantial powers as a dominant shareholder, it also possesses enormous leverage at the point in which it is considering acquiring an equity position. We here review critically the processes by which the government took a controlling position in AIG, Citigroup and General Motors, in order to draw lessons for the future.

AIG

In the case of AIG, the government acquired a nearly 80 percent share in the company as a condition of a commitment to prevent the company's failure.

The decision to bail out AIG was made very suddenly, amidst market chaos. In addition to the equity stake, the government did condition its support for AIG on removal of the firm's executives.

Most notably in the case of AIG, the government did not condition its bailout and equity infusion on the firm's credit default swap counterparties accepting a haircut. This was not a small oversight; the primary rationale for the AIG bailout was the potential impact on counterparties. Rather than establishing that counterparties would accept a hair cut, they were paid 100 cents on the dollar. In this sense, the AIG bailout is a misnomer; the bailout of AIG has really served as a backdoor bailout of the giant firms on Wall Street, led by Goldman Sachs, and overseas (where AIG sent half of its credit default payments, after being bailed out).

New management is in place at AIG, but even though the government now owns nearly 80 percent of the company, it is not directing operations, though it does appear to be pressuring management to sell off units and take other steps to raise revenues.

Citigroup

The government bailout of Citigroup has proceeded in stages, including two separate infusions of capital, a $290 billion guarantee of Citi's toxic assets negotiated in obscurity, and a conversion of preferred shares into common equity. The government now owns one-third of Citi.

While the initial infusion of capital through the TARP program was rushed and done as part of the initial roll out of the government's bank bailout program, subsequent measures have not been so rushed. This is particularly true of the government's conversion of preferred stock into equity, a deal at least six months in the making. There is little or no evidence that the government demanded reciprocity or conditions from Citi for these deals.

The FDIC has reportedly pressured Citi both to shed assets and shake up internal management, but there are not reports of the government using its one third stake to shape the future of the company.

General Motors

After extending loans to GM in 2008, the government in June 2009 plunged GM into bankruptcy, in a complicated maneuver that ultimately left the government with a 60 percent share in the new GM.

Although it was completed under time pressure, the GM deal by comparison to AIG and the initial TARP bailout was not rushed at all. Over a period of many months, the Obama administration engaged in negotiations with GM, rejecting initial reorganizing plans and ousting the company's CEO. The government only agreed to its GM bailout and equity stake after extracting a reorganization plan that includes eliminating four GM brands, closing GM factories across the country and eliminating hundreds of dealers. Also in stark contrast to AIG, the government negotiated directly with GM's creditors, and insisted they take a massive hit to their interests as a condition of the government cash infusion. These creditors included bond holders who post-bankruptcy were given equity worth perhaps 10 cents on the dollar of the face value of their bondholdings (they received 10 percent of the New GM). Creditors also included unionized auto workers.[2]

The GM deal was negotiated by a secretive White House task force made up of Wall Street expatriates with little or no experience in the auto industry and enormous delegated authority. They clearly drove a hard bargain for the government infusion of capital, but to what end is much less clear. The objective seemed to be to preserve GM as a going entity, but without regard to the reasons

[2] Workers had in recent years exchanged lifetime healthcare guarantees for a Voluntary Employee Benefit Association (VEBA). At the time of negotiation in 2007, GM committed to fund the VEBA at $29.9 billion -- an amount very likely inadequate to satisfy outstanding healthcare obligations to workers and retirees (it represented 63 percent of prior liability). The government's negotiated deal leaves the VEBA with a 17.5 percent share of New GM, $6.5 billion in preferred shares paying 9 percent interest, a promissory note for $2.5 billion, and $9.4 billion that had been previously contributed to the VEBA.

that there was and is a legitimate and important public rationale for preserving GM. Apart from the very significant but neglected procedural questions around the task force's operations, the final closed-door deal raised very important substantive concerns:

- The government maneuver of GM through the bankruptcy process ran roughshod over traditional bankruptcy protections. While some interested parties were able to air their concerns, they were not able to receive proper consideration in the limited time afforded. There is reason to be concerned about the precedent set for this kind of managed and pre-packaged bankruptcy process, including in the future when private parties inevitably aim to emulate the federal government's practice.

- The government required GM and Chrysler to close hundreds of dealerships, estimated to cost 100,000 jobs. No adequate explanation was ever provided for the rationale for these forced closures, particularly given that the independent dealerships imposed no costs on the manufacturers. One reported rationale was to enable remaining dealers to raise consumer prices, but that hardly seems to be reasoning the government should have embraced.[3] Whatever the rationale, it is hard to imagine that the benefit offset the lost 100,000 jobs.

- While there was probably a need to reduce GM's manufacturing capacity, there was no need to cut worker wages and benefits. Auto worker wages contribute less than 10 percent of the cost of a car, so even the most draconian cuts will do little to increase profits. Yet the Obama administration's auto task force helped push the United Auto Workers into further acceptance of a two-tier wage structure that will make new auto jobs paid just a notch above Home Depot jobs. This will drag down pay across the auto industry, with ripple effects throughout the entire manufacturing sector. Stunningly, the Obama administration bragged that "the concessions that the UAW agreed to are more aggressive than what the Bush Administration originally demanded in its loan agreement with GM."[4] This new pay structure for what was once the cutting-edge pathway into modestly comfortable living for working families will have long-lasting and regressive impacts throughout the country.

[3] Peter Whoriskey and Kendra Marr, "Chrysler Pulls Out of Hundreds of Franchises," Washington Post, May 15, 2009
[4] http://www.whitehouse.gov/the_press_office/Fact-Sheet-on-Obama-Administration-Auto-Restructuring-Initiative-for-General-Motors/

- In part because of the secretive and unaccountable nature of the White House task force charged with managing the GM negotiations, there is no satisfactory evidence to justify the decisions about brand elimination and factory shutdowns. Irrespective of whether there was a need for reducing capacity, there is good reason to question the particulars of the decisions and whether excessive closures were mandated. These closures of course increase unemployment and related ills through direct and indirect impacts. They also foreclosed or at least ignored alternative options, namely converting plants to address new transportation needs, a point we discuss further below.

- Because of the discretionary decision to enter GM into bankruptcy, General Motors eliminated its liability to victims of defective products it had sold before the bankruptcy. Victims of accidents that occurred before the bankruptcy had their claims extinguished. The bankruptcy even eliminated claims by victims of accidents that had not yet occurred, if those accidents were due to defects in GM cars sold before the bankruptcy. Under public pressure, New GM agreed to accept liability for new victims. But existing victims are left with no recourse, unless a legislated remedy is provided.

  This is a manifest injustice -- a cruelty -- for identifiable persons. One such real person is Amanda Dinnigan, a 10-year-old girl from Long Island, New York. Amanda was injured by an allegedly faulty seatbelt in a GMC Envoy that snapped her neck in a crash. Her father, an ironworker, estimates her healthcare costs at $500,000 a year. Her lost quality of life will obviously be tragic.

- Among the most worrisome and bizarre components in the restructuring plan is the willingness to sacrifice U.S. manufacturing, and permit GM to increase manufacturing overseas for export back into the United States. News reports indicate that the company will rely increasingly on overseas plants to make cars for sale in the United States, with cars made in low-wage countries like Mexico rising from 15 to 23 percent of GM sales in the United States. For the first time, GM plans emerged to export cars from China to the United States, in what may be a harbinger of the company's future business model; although the company has stated after negative publicity that it will not export from China, there is no evidence that it is abandoning the business model of outsourcing production for the U.S.

market, and questions remain about how binding is the commitment not to export to the United States from China.[5]

Why should a government-owned company be managed in this way, in each instance contrary to overriding public policy objectives?

Government as Controlling Shareholder: Appropriate Policy Objectives

We recognize that the government does not fully own any of the three companies on which we are focusing, and has certain obligations to the other shareholders in those firms. This is particularly true for Citigroup and AIG, which continue to trade on public markets subject to SEC rules and governing law. Nonetheless, the government possesses a controlling interest in each of the three companies and has substantial authority to direct their operations, so long as they do not impair the value of the corporations.

We also acknowledge that Citi has announced its intention to pay back its TARP loans, and that the government has also indicated its plans to sell its one third stake in Citi in the near future. We address government-as-shareholder "exit" issues at the end of this testimony. Here we focus only on what the government could and should do as the dominant shareholder in Citi.

Our starting point is that shareholding comes with obligations, responsibilities and opportunities. The government as shareholder must accept these responsibilities and should capitalize on the opportunities. The government has taken substantial equity positions in these firms precisely because they were mismanaged; it makes no sense for the government then to operate as a passive investor deferring to management. As would any other major shareholder, the government should seek seats on the board of directors proportionate to its equity holding. These directors' duty necessarily runs to the firm, but they should also understand their role as representatives of the government that saved the company.

The operations of any major corporation in which the federal government invests will have major ramifications for the public interest, and will impact numerous areas in which the government has statutory mandates. The government should

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[5] There is as well the less pressing but non-trivial issue of whether U.S. government provided funds are being used to shore up GM's operations overseas, as opposed to investing in the United States. See Jake Tapper and Matthew Jaffe, " Will GM Spend Taxpayer Bailout Money on Overseas Operations?" ABC News, November 16, 2009, available at: < http://abcnews.go.com/Politics/general-motor-spend-taxpayer-bailout-money-overseas-operations/story?id=9091248>

leverage its equity position to advance these public interest objectives, including but not exclusively taxpayer financial interests.

Taking an equity position in a non-governmental corporation is an unusual move for the government. There is a heavy presumption against such actions. That presumption will normally be overcome only for companies in distress. In such cases, there will, typically, necessarily be substantial potential costs to taxpayers -- making it all the more appropriate for the government to leverage its shareholding role both for taxpayer protection and to pursue other statutory public interest objectives.

For the companies in which it takes equity stakes, our view is that the government should consider supporting initiatives specific to the company and its industry, and also presumptively support certain measures for all companies. Here we highlight a range of such proposed rules for Citigroup and AIG and the financial industry more generally; and for General Motors. We then indicate measures that should apply to all companies.

Citigroup and AIG

Consumer Protection

Citi, like other big banks, has engaged in a variety of practices to rip off consumers. Citi is among the big bank perpetrators of overdraft fee abuse. Citi has also long engaged in a wide array of abusive practices involving credit cards. These include inappropriate marketing efforts, especially to students, excessive fees, high interest rates and inappropriate charges. AIG, meanwhile, has long been accused of inappropriate claims denial.[6]

The government should use its ownership stake to ensure that the companies in which it maintains a controlling interest end abusive consumer practices. Surely this is a modest request. There is no taxpayer interest in generating profits by ripping off consumers -- who are, after all, taxpayers. There is also a compelling argument that establishing a reputation as fair-dealing and trustworthy companies will establish attract business and build long-term value for shareholders.

More affirmatively, the government should require the financial service firms in which it owns a stake to offer to consumers the best financial product terms for which they are eligible. They should be mandated to offer "plain vanilla" products -- those without tricky price-gouging features, including hidden fees and

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[6] See Dean Starkman, "AIG's Other Reputation: Some Customers Say the Insurance Giant Is Too Reluctant to Pay Up," Washington Post, August 21, 2005, available at: <http://www.washingtonpost.com/wp-dyn/content/article/2005/08/20/AR2005082000179.html>

adjustable interest rates -- and in appropriate cases mandated to offer plain vanilla products exclusively.

Mortgage Modification

The foreclosure crisis continues to worsen. Goldman Sachs projects the crisis will persist at least until 2014, with well over 10 million families thrown out of homes. Since its bailout, Citi has been among the more engaged banks in mortgage modification programs, but it is not doing nearly enough. The government should leverage its shareholder role so that Citi systematically offers mortgage modifications, including but not exclusively through federal government programs. More important, the government should leverage its shareholder role to ensure Citi adopts a policy of offering any person or family living in a foreclosed house the right to maintain residence as a renter paying a fair market rent. This approach will help preserve home values, avoid needless displacement of families and disruption of communities, and also encourage Citi to renegotiate loan terms, involving not just reductions in monthly payments, but reductions in underlying principal to reflect market values. There is no cure for the foreclosure crisis without reduction in principal.

Escape From Exotic Financial Instruments

The proliferation of exotic financial instruments in the last decade led to massive leveraging and complicated interconnections among top firms that no one could track. While financial derivatives are rationalized as helping economic players hedge against risk, it turns out they are primarily speculative tools used overwhelmingly by a small number of players.

Until its collapse, AIG, of course, was perhaps the leading "insurer" of credit default swaps. AIG had taken on this role through a small London-based division that operated on the premise that there was zero chance of default on the underlying assets it was insuring. Setting aside no collateral, it believed it was taking money for nothing. This proved to be a false assumption. It also emerged after the AIG collapse that the firm did not know all of the credit default swap contracts into which it had entered.

With the government as owner, AIG is now unwinding its derivative positions in its Financial Products division. This is a welcome move. AIG should commit not to invest in exotic derivatives, with the possible exception for cases that relate directly to the firm's own business (e.g., to hedge against foreign currency fluctuation).

The great financial collapse notwithstanding, the concentration of financial industry massive speculative betting continues, with five banks -- including Citi -- owning more than four-fifths of the notional value of all outstanding derivatives in the United States. The notional value of these banks' derivatives exceeded $190 trillion in the first quarter of 2009.

The government should leverage its investment in Citi to eliminate the firm's investment in derivatives (again with the possible exception of legitimately hedging its own risks, such as currency fluctuation). There may be a rationale for Citi's investment banking operations to invest in such instruments, but if so, those operations should be divested.

For now, it appears that Citi is moving in the exactly opposite direction. Business Week reported in August that instead of swearing off risky financial products, big banks including Citigroup have rolled out a variety of "newfangled corporate credit lines tied to complicated and volatile derivatives," linking the credit lines "both to short-term rates and credit default swaps (CDSs), the volatile and complicated derivatives that are supposed to act as 'insurance' by paying off the owners if a company defaults on its debt."

Environment

By virtue of their far-flung operations and global investments, both Citi and AIG have a major environmental footprint. The government should ensure that its investments in the companies advance priority environmental objectives.

Both Citi and AIG should phase out of carbon intensive financing, such as new coal-fired power plants, tar sands development, and increase ecologically friendly lending.

The organization BankTrack has established a useful framework for both mitigating financial sector contributions to climate change and affirmatively supporting investments in efficiency and renewables. Key mitigation measures include:

- Measuring the greenhouse gas pollution component of all financial services:
- Establishing targets to progressively diminish the amount of greenhouse gas contributing projects that are financed;
- Developing management tools for greenhouse gas mitigation.

The inclusion of environmental criteria in service and investment guidelines should direct what the companies do, but need not injure their bottom line.

Avoiding environmentally harmful projects may mean skipping some profitable projects, but there are plenty of profitable alternatives available. Moreover, a focus on environmentally friendly projects is almost certain to be a smart long-term business decision, as the world rapidly shifts to clean energy sources.

In retail banking, Citi could facilitate installation of efficiency and renewable energy technologies. In its shareholder role, the government should ensure that Citi includes financing for retrofitting or solar panel installation along with every home mortgage. The mere act of offering financing, even at market rates, could facilitate a major uptick in retrofitting and massive deployment of solar or similar decentralized technologies. If combined with programs to pay off financing through savings in utility bills -- so that consumers do not need to pay any incrementally upfront cost for their investment in efficiency or renewables -- such an effort could have a dramatic effect on spurring residential (and commercial) installation of efficiency and renewable technologies.

Industry Structure

Both Citi and AIG are undertaking major asset sales, with the goal of raising capital to pay back government obligations. Citi in particular is also selling off assets with the aim of rationalizing its global organization.

Yet there is a public interest in shaping the structure of financial industry firms which is distinct from the narrow firm interest. The financial system will be safer and more robust -- less subject to systemic risk -- if firms are smaller, and if there is a separation between heavily regulated activities like those of insurance companies and depository institutions, on the one hand, and speculative-investment bank activities on the other. The enduring wisdom of Glass-Steagall has been amply demonstrated by the financial crisis.

The government as shareholder should give a hard look not just at spinning off particular divisions but breaking AIG and Citigroup into multiple pieces. Although such a move would be motivated by broad public interest concerns, there is very good reason to believe that such a move would enhance shareholder value.

General Motors

Paying Good Wages and Maintaining Good Jobs

The economic rationale for investing in General Motors as part of a bailout package was to preserve a company that plays such an important role in so many communities across the country, and to prevent the massive ripple effects that would follow from a GM collapse. We believe the GM bailout was justifiable and necessary. Yet the economic rationale was, to some considerable extent, undermined by the excessive plant and dealer closures referenced previously, as well as by the massive concessions wrung from the unionized workers.

As an investor, just as in its role as an employer, the government must be mindful of guarding taxpayer assets. Yet it should not emulate the most ruthless practices of private employers. The purpose of the GM bailout was not just to save jobs, but to save good-paying jobs. The wage and benefit givebacks demanded of unionized workers undermined this objective.

Absent a compelling showing of need, the government as investor should not demand givebacks from workers. In the case of GM, in an industry where wages make up a small percentage of overall costs (in stark contrast to the financial industry), there was no such compelling need. An aim of the government investment should have been -- and should remain -- to preserve the living wage pay structure of unionized manufacturing workers.

Concessions imposed on GM workers as part of the bailout process should be undone.

It should be self-evident, but apparently is not, that a government investment in a manufacturing corporation should aim, at minimum, to maintain domestic production for the domestic market. U.S. government investments should aim to preserve jobs in the United States. The government as shareholder should insist that GM's reorganization plans be revised to ensure that there is no shift to, or increase in, production overseas for sales in the U.S. market.

Motor Vehicle Safety

The societal costs of injury, death and destruction related to motor vehicle crashes remain immense -- and they are, to a disturbing degree, preventable. For decades, an industry-beholden National Highway Traffic Safety Administration (NHTSA) has failed to realize its statutory mandate to advance safety. The domestic auto companies have preferred to invest in marketing schemes, more powerful engines, stylistic design, overseas markets, financing schemes -- anything but the safety technologies they mistakenly believe impose costs but do not help sales. Numerous innovative technologies remain on the shelf; cutting-edge suppliers are not able to crack the oligopolistic market; and the manufacturers chronically under-invest in new safety technologies while expending very substantial sums to ensure that NHTSA does not force or even nudge them to do so.

There is a generation of backlogged engineering advances well suited for commercial application and widespread diffusion. Today, as was the case 40 years ago, auto company top management stands in the way of this new age of benign and efficient automotive technology. With few exceptions, a vast wasteland of technological stagnation and junk engineering from domestic automakers destroyed over three decades of opportunities for increasing the health, safety and economic efficiency of the motoring public. This "dark age" of the domestic motor vehicle industry was not the result of a series of omissions. It was the product of a deliberate expansion of the auto giants' power to block each and every stimulus, every prod and every dynamic process which would have jolted these behemoths out of their complacent, myopic stupor.

The suppressed technologies include everything from windshields with better visibility in the rain to stronger passenger compartment integrity, from more effective seat belts to better headlights, to collision avoidance systems.[7]

The government should leverage its equity position in General Motors to ensure it invests more in safety technology, and rapidly deploys existing technologies. This is a case where a push from the government-as-investor will almost certainly pay off in monetary terms as well as improving safety. Although GM has refused to accept it, safety sells.

Fuel Efficiency and Transformative Technologies

Surveying the manufacturing landscape, one would have a hard time finding an area where technology has stagnated as badly as auto safety. But one area that would surely qualify is auto fuel efficiency. Overall auto fuel efficiency has steadily declined over the last quarter century, as the industry sabotaged efforts to improve regulatory requirements and banked its future on sales of poor-mileage-performing SUVs and minivans.

The Obama administration deserves credit for reversing the decades-long failure to raise fuel efficiency standards. Yet the new fleet fuel efficiency standard of 35.5 miles per gallon by 2016 is short of the existing technological frontier -- and will not force the shift away from gasoline-powered vehicles needed to avert catastrophic climate change.

Technology available at the beginning of this decade could have supported a 46 mpg standard for automobiles and a 40 mpg standard for light trucks, according to

[7] For a detailed discussion of both suppressed technologies and the industry failure to innovate and deploy safety technologies, often developed by its suppliers, see Rob Cirincione, "Innovation and Stagnation: In Automotive Safety and Fuel Efficiency," Washington, D.C.: Center for Study of Responsive Law, 2004, available at: <http://www.csrl.org/reports/Innovation.pdf>

the American Council for an Energy Efficient Economy.[8] A 50 mpg overall fleet standard is obtainable by the end of the next decade.[9]

While there is an overwhelming case for adopting more robust fuel efficiency standards, the government's controlling ownership stake in the largest U.S. automaker gives it an opportunity to circumvent in part the political difficulty of enacting a new regulatory standard: it can simply direct the company it owns to achieve this standard.

Relatedly, the government as shareholder should insist that GM significantly increase its investments in electric vehicles and other transformative technologies to replace the internal combustion engine.

Investments in Mass Transit Production

There is a separate opportunity, so far completely unexamined, to use the government's ownership stake in GM to increase dramatically the country's commitment to mass transit. Closed GM plants could be put back on line, making light rail cars and natural gas-powered buses -- products that are underproduced or not produced at all in the United States.[10]

Whether such a conversion opportunity is financially feasible of course requires real study. But in offering the possibility of utilizing shuttered manufacturing plants ready to put people back to work and help facilitate the transition to a clean energy future, the idea has evident appeal. It may be outside of the normal business investment framework today (though not outside the framework of GM's past, when it produced mass transit vehicles) -- but then so is a government investment in GM. Our national economic crisis requires that we consider non-traditional approaches to job creation, and the prospect of catastrophic climate change obligates us to escape conventional thinking to protect posterity and our planet. Given these factors -- and the scale of the public investment in GM -- it is dismaying that such issues are not under serious consideration.

Ground rules for the government as shareholder

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[8] J. DeCicco, F. An, and M. Ross, *Technical Options for Improving the Fuel Economy of U.S. Cars and Light Trucks by 2010-2015*, American Council for an Energy Efficient Economy, April 2001.
[9] Schewel, Laura; Lacy, Virginia; Bell, Mathias; Fluhrer, Caroline; Maurer, Eric, "RMI's Top Federal Energy Policy Goals," Snowmass, Colorado: Rocky Mountain Institute, 2009, available at: <http://rmi.org/rmi/Library/2009-01_FederalEnergyPolicyGoals>.
[10] For further elaboration of this idea, see "New Directions for Government Motors: An Interview with Jerry Tucker," Multinational Monitor, May/June 2009, available at: <http://www.multinationalmonitor.org/mm2009/052009/interview-tucker.html>.

Each case of government-as-shareholder presents particular needs and opportunities. But there are some general policies that the government-as-shareholder should presumptively advance in every firm in which it takes a controlling stake.

Executive Pay

Although it is obvious that talented corporate executives must be paid well, there is no evidence that extremely high pay is correlated with excellent performance. Indeed, the Wall Street collapse provides abundant evidence to the contrary -- outrageously compensated executives and employees drove their companies to failure.[11]

"Pay czar" Ken Feinberg has established some reasonable guidelines for pay at firms in which the government has a dominant stake.

Political Influence Peddling

It makes no sense for firms in which the government is a controlling shareholder to spend company assets trying to influence public policy. Yet this is continuing. In the third quarter of 2009, according to its lobby disclosure forms, Citigroup has spent $1.85 million on federal lobbying -- on mortgage modification issues, overdraft protection, patent reform, student lending rules, credit card regulation, derivatives and the overall financial regulatory legislation under consideration in Congress. In the third quarter of 2009, General Motors spent $180,000 on federal lobbying on appropriations issues, climate change legislation, privacy issues, and auto safety, among other issues; GM did file a lobby termination report on July 10, however. AIG has discontinued lobbying on federal issues. But the company has spent more than $2.2 million on lobbying in 2009. In its federal disclosure forms, AIG indicates most of this total has been spent on state-level lobbying.

Firms in which the government has a controlling stake should not engage in lobbying at the federal or state level, and should not make campaign contributions.

Accounting Tricks

[11] See "Rewarding Failure," Public Citizen, December 14, 2009, available at: <https://salsa.democracyinaction.org/o/476/images/Rewarding%20Failure.pdf>.

Government-controlled enterprises should not be engaged in accounting chicanery. Both AIG and Citi have recent histories of such maneuvers, which are often the hallmark of more profound problems in corporate operations.

AIG has on two separate occasions in recent years been fined for accounting misdeeds.

In December 2008, the Government Accounting Office reported that Citigroup had 427 subsidiaries in jurisdictions listed as tax havens or financial privacy jurisdictions (including 90 in the Cayman Islands alone) -- the largest number of any Fortune 100 company. AIG had 18.[12]

The government-as-shareholder should leverage its power to end off-the-books accounting and use of offshore tax havens by the firms in which it exerts control.

Union Neutrality

The government-as-shareholder should leverage its power to ensure that firms in which it has a dominant share adopt a neutral posture to any efforts by workers to organize into unions.

Compliance Programs

Particularly because firms in which the government takes a controlling stake will typically have had severe problems, and because mismanagement is often associated with lax respect for regulatory requirements, the government should ensure that these firms adopt best practices for robust regulatory compliance programs, including creation of external monitors and protections for whistle-blowing employees.

Consumer Empowerment

Poorly run firms view customer service as a burden. Well run -- and profitable -- firms view customer service as an obligation and opportunity, and welcome consumer empowerment.

The government should ensure that firms in which it has a controlling stake eliminate abusive practices, such as including small-print mandatory arbitration provisions in standard form contracts. Such provisions deprive consumers of their

[12] "Large U.S. Corporations and Federal Contractors with Subsidiaries in Jurisdictions Listed as Tax Havens or Financial Privacy Jurisdictions," Washington, DC: GAO, December 2008.

day in court for redress against product flaws and other claims against a manufacturer or service provider.

More affirmatively, the government should ensure that the firms in which it has a controlling stake invite consumers to join independent, democratically controlled consumer organizations. Depending on the nature of the company, such invitations can be extended at point of sale and/or through regular billing inserts. Such independent consumer organizations would be able to monitor company performance and advocate for improvements.

Exiting the Shareholder Role

Corporations generally do not welcome government investment, precisely because they fear that strings will be attached. But when government investment is necessitated, it *should* come with strings. The government has multiple missions and objectives. It is illogical for a firm in which the government maintains a controlling stake to undermine public mandates and missions; nor is there any reason why the government should shy away from pressing these firms to advance statutory public objectives in areas including consumer protection, financial stability, vehicle safety, fuel efficiency and emissions controls -- particularly in the many cases where such efforts are compatible with profitable pursuits.

Right now, Citigroup is aiming to exit the TARP program, and have the government sell its shares in the company. It is widely understood that Citi's aim is to escape executive and highly compensated employee pay restrictions. Citi's rush to escape the government's embrace is selective; it aims to pay back TARP and have the government sell shares, but it continues to benefit from strings-free government guarantees and a host of other benefits and programs conferred on the financial sector.

Even looking at the issue from narrow financial terms, it is not at all obvious that Citigroup is healthy enough to pay back the government, or that it is in the public interest for the firm to do so. The money it will raise to pay the government will come with higher interest rates than the government loans, and is capital that the firm will not have available for lending. These issues merit more Congressional oversight and scrutiny.

But what if Citi while under government control had been required to adhere to some of the concepts we outline here? And what if the firm had indeed returned to financial health?

A corporation should not be able to rent a government equity investment. A loan can be paid back, according to its terms. But once the government is an owner, it is an owner. Proportionate to the government's stake, the firm belongs to the government; apart from other valid stakeholder concerns, firm management does not have legitimate interests distinct from its shareholder-owners. Thus it must be the government, not the firm, that sets the terms and timing of exit. This is a matter about which public comment should be sought. The government in its investor role should consider how the timing of its exit may affect its financial returns. And a government that properly seeks to advance public policy objectives in its role as controlling shareholder should ensure that those objectives will continue to be achieved before it divests itself of its controlling position.

Thank you very much.

Mr. KUCINICH. Thank you very much, Mr. Nader.

As Chair, I am going to now go to the question period. I would like the gentleman from Maryland, Mr. Cummings, to begin. So if you would go to 5 minutes of questions.

Mr. CUMMINGS. Thank you very much, Mr. Chairman.

I want to read an excerpt from a column that Carl Icahn write in The New York Times on March 29th of this year. He writes, "Sadly, though, under American corporate law, share ownership does not count for much. Barney Frank might be surprised to learn that a lawsuit would have almost no chance of success in court, even for a majority shareholder like the government. AIG would most likely argue that the oft-cited 'business judgment' rule gives management wide latitude to set compensation without shareholder interference. What the government should have gotten was board representation in return for its large investment in AIG."

I just want to ask you all—whoever feels best qualified to answer the question, please do—while we know that AIG now has a substantially different board, Mr. Icahn still points out that shareholders have the deck stacked against them. In your opinion, was Icahn correct or is the current model—for example, the Credit Facility Trust—the best means of representing and ultimately extricating the Government from its investment in AIG?

Mr. VERRET. Well, Congressman, I would offer that one of the things that concerns me about corporate liability is that, typically, a controlling shareholder would share the same liability to the other shareholders as the board or the executive. But when the Government is the controlling shareholder, it has sovereign immunity, so it would not get any liability at all, any chance of liability.

Now, I am aware that Mr. Icahn is critical of the business judgment rule, which is part of State corporate law. You know, sometimes shareholders win and sometimes they lose. I know that a challenge to Citigroup is still ongoing in the Delaware Court of Chancery, and it survived a motion to dismiss, and I know that there have been a number of cases that have won, a number that have settled, and some of them don't. So I think there is a healthy debate about the business judgment rule.

Mr. CUMMINGS. I was intrigued by your testimony, Professor, and I was just wondering how do you react when we have the AIGs of the world taking Government money and then basically saying screw you to the American public as they go off and do all kinds of wonderful things, junkets and bonuses and whatever? How is the American public, who owns it, how do you think it is best that they exercise some control over that?

Mr. VERRET. Well, I worry——

Mr. CUMMINGS. Or you don't think they should have any control?

Mr. VERRET. I worry that the exercise of control will revert to the sort of pork barrel——

Mr. CUMMINGS. I got all of that. But what I am saying to you is that—you are a law professor?

Mr. VERRET. Yes, sir.

Mr. CUMMINGS. And I know law professors, you sit in those nice offices and everything. But I am talking about the real nitty gritty. We have the American people who are losing their houses, losing their savings, losing their jobs, losing everything. They give to these corporations their hard-earned tax dollars, and then we have these corporations basically spitting in their faces and saying, you know, screw you. So what happens from a political standpoint, it becomes very difficult, after you have helped somebody extricate themselves from a drowning situation, to have them do that to you.

So the question becomes—I got all the corporate law. I got that, I understand it. But how do the American people then get some kind of foothold in this governance so that they can make sure that those things don't happen. You follow what I am saying?

Mr. VERRET. I appreciate your concern——

Mr. CUMMINGS. Mr. Nader, I would like for you to chime in on this, if you don't mind.

Mr. NADER. Yes, of course. We have recommended a principle which basically says if the Government doesn't facilitate the civic organization of the ultimate beneficiaries—workers, investors, etc.—no regulatory or bailout process is going to be fair and going to be enforced. What you are talking about is reciprocity. Look at what people have given up involuntarily: their jobs, their savings, their pensions, their consumer protections. And what are they getting in return? An in-your-face attitude by these managers who directly or inherited reckless management that basically says we are going to continue business as usual and we are going to pay our people enormous bonuses.

There is a level of arrogance and lack of remorse here that is unprecedented in American corporate history.

Mr. CUMMINGS. So you think this is new. You said it is unprecedented.

Mr. NADER. In its magnitude and its face. In Japan, they would apologize on national TV for far less transgressions, the corporate executives.

Mr. CUMMINGS. Thank you very much. I see my time has expired.

Mr. KUCINICH. I thank the gentleman.

I am going to recognize Mr. Jordan for 5 minutes, then I will go to Mr. Tierney, if he would like.

Go ahead, Mr. Jordan.

Mr. JORDAN. Thank you, Mr. Chairman.

Professors, did you ever think you would see the day where, in the United States of America, we would have, in fact, a Federal Government pay czar telling private American citizens how much money they can make? And before you answer that, I want to go to what Mr. Nader—because I think he does have a valid point. In the limited context we are talking about, these institutions came to the U.S. Congress, stuck their hand out and asked for money. Maybe it is understandable, but when you think about where we are today and couple that with statements made by some Members of Congress, particularly Senator Schumer, where he indicated that maybe in the future we should look at any publicly traded company, executives at those companies, being subject to the pay czar. Did you ever think you would see that day? And I want the professors to have first whack at it.

Mr. ECKBO. I think you actually saw say-on-pay demands back in the 1930's after the crash. You saw it also in the early 1990's, and you have seen say-on-pay demands in Europe for a while. So

I think the issue of shareholders wanting to have a say on pay is not terribly new. I did not expect to see it here as much as I have seen it, but I think it has to do, as I said before, I think it has to do with a failure of boards in general. So if you can trust your board, you can also trust their pay policies.

I don't think shareholders or taxpayers are asking for a say on pay because they don't like the numbers per se, but because they don't trust the decision process that went behind those numbers. That is why I am saying we need to reform our ability to get boards to represent ourselves as taxpayers or as shareholders, more specifically. We need the election reform to be accepted.

Mr. VERRET. I think in answer to your question, Congressman Jordan, and also in answer to Congressman Cummings' question, I think one of my concerns is that, look, most of the investors in Citigroup, in Bank of America are pension funds and retirement funds. Ordinary Americans are investing in these companies, and I think they have already been hit hard enough. Look, they have foreclosures, they are facing unemployment, and now Government leaders are going to use their pension funds and their 401-Ks as a vehicle for more special interest spending for special interests, and I think that is the last thing they need right now.

And I would also offer, with respect to say-on-pay. A lot of folks make an analogy to say-on-pay as it is used in the United Kingdom. One of the major differences between us and the United Kingdom is most of their investors are—most of their large institutional investors are insurance companies and private company pensions. We have a lot more union investors here, and I think that offers a lot more conflict of interest if you empower a certain minority of the shareholder electorate that has a special interest——

Mr. JORDAN. Let me just change gears for a minute and I will let you jump in here. The transparency issue that some brought up and particularly Mr. Nader brought up I think is very valid. I happen to live in a district where they closed the General Motors facility. I remember being on the conference call the night before they were going to make the announcement and the folks on the—Mr. Sperling on the conference call said the Government, the auto task force will only weigh in if it is a major decision. Many Members of Congress were on that call; they asked questions.

Finally, it came to my question and I said, How do you define major? And he didn't have a definition for it, which means it can be any darn thing they want. We actually know that auto task force submitted General Motors, the executive of General Motors submitted a report to the auto task force their restructuring plan. It was denied. So who is making decisions? We would like to know what was in those—I have asked to see those. Oh, proprietary information; we can't get access. So I can see both sides of this equation, but this lack of transparency, and when you couple that with what I believe Ms. Brown said in her testimony, exit strategies are still evolving. We don't know where this is—and that is the biggest concern. We would like to know where this is going, how the taxpayers are going to get out of this, what it means for our economy.

So talk to me, if you would, professor, about what I view as a lack of transparency with where we are right now, and then I will go to Ms. Simpson—I know you wanted to jump in—and Mr. Nader.

Mr. Verret, you can go first.

Mr. VERRET. Sure. I would absolutely agree. I think this is where the liability for controlling shareholders comes in as well. Usually, if any other controlling shareholder would have done some of this stuff, they would have been taken to court and they would face tremendous liability. But Treasury gets a complete get out of jail free card from its securities and corporate liabilities; it is free to engage in insider trading if it wants to. So we have seen no accountability and no transparency.

Mr. JORDAN. I am out of time.

Ms. Simpson and then Mr. Nader real quick, or whoever wanted to jump in. I am sorry.

Ms. SIMPSON. Thank you. Briefly. I would like to comment on this question about accountability because it is quite normal in a board election, in an American company, that the shareholders can't vote no; they cannot actually remove the board. Likewise, it is expensive and fiendishly complicated to actually put a director forward. Therefore, we must take the bigger picture here and realize that the reforms on majority voting, as it is called, and proxy access, as it is called, are critical to giving owners the ability to behave responsibly and hold boards to account. Power—a vacuum and we have a vacuum.

So, in the U.K., I would suggest that say-on-pay was a sort of additional extra. The reason pay is better aligned with performance and the multiples are not so eye-popping is because owners have the right to vote no when boards come up for election and it is very simple to put candidates forward.

So we hope that those two wider reforms do come to pass in the United States and we think it will be a big step forward. Thank you.

Mr. KUCINICH. I thank the gentleman. The gentleman's time has expired. We may have a second round of questions; I think we will, given this panel.

The Chair recognizes Mr. Tierney for 5 minutes.

Mr. TIERNEY. Thank you, Mr. Chairman.

I am struck, Mr. Verret, by some of your testimony here. I guess the way I read your theory is that even though the companies came to Washington on their hands and knees looking for a bailout, and that, in exercising the shareholder responsibility, the Government should still just step back and let those same failed executives and people go about their own way without any interference; that even as people with an interest in it, we should just step aside and let it go, meaning that they can then continue to disregard whether it is tax law or labor law, environmental law, regulations or whatever that protect what now is a principal shareholder. I don't think I quite get that reasoning.

Mr. VERRET. Well, that is not where I am going, Congressman. I would offer that I would like to see a trust set up to run the Government's investment in these companies. I would like to see these trustees, appointed by the President, insulated from short-term political pressure in the net election. Those sort of conflicts——

Mr. TIERNEY. What would the relationship between those trustees be with the taxpayers whose money is what is invested?

Mr. VERRET. Well, in the bill that has been introduced by Senator Warner, Senator Corker, and also by Congressman Bacchus in the House, they would have a fiduciary duty to maximize the taxpayers' investment.

Mr. TIERNEY. Much like the way there is a fiduciary duty for these failed executives to maximize the investment of their shareholders, which they did by taking exorbitant salaries and many times other violations of good management practices?

Mr. VERRET. Well, I wouldn't bail out this trust any more than I would have bailed out these companies, and I think that is a big part of the problem, the moral hazard problems of bailouts; and I am not a supporter of the bailout any more than I think a lot of Members of this body.

Mr. TIERNEY. So you would have let AIG and Citigroup and all those banks just go down?

Mr. VERRET. I would have let some of the banks go down, absolutely, because I think they got a great deal.

Mr. TIERNEY. All of them or just some of them?

Mr. VERRET. I wouldn't have given AIG nearly as much as they did; I would have cut the counterparties' exposure; I wouldn't have given——

Mr. TIERNEY. But you would have given them something.

Mr. VERRET. Oh, I would have tried to make sure they didn't bring down the financial system, but I wouldn't have given such a giveaway that I think we saw——

Mr. TIERNEY. So yours is a question of degree. You would have bailed them out; you just would have bailed them out differently.

Mr. VERRET. Well, I wouldn't have bailed out Citigroup; I would have let Citigroup fail, absolutely.

Mr. TIERNEY. Well, but AIG?

Mr. VERRET. I think AIG, you had to do something because it would have brought the whole——

Mr. TIERNEY. So you would have bailed them out; you just would have done it a different way than the people that made the decision like Paulson and others.

Mr. VERRET. I would have given them a very small percentage of what they gave them. And I think——

Mr. TIERNEY. All right. I just want to establish it is a matter of degree that we are talking about.

Mr. VERRET. Sure.

Mr. TIERNEY. A different look on that basis.

Mr. Tonelson, what are your specific ideas on how we rebuild our manufacturing base? I read your testimony and I agree with some of the generalities you have in there, but if you had to say there are three or five specific policies that we ought to start embarking on right now to reestablish manufacturing, what would they be?

Mr. TONELSON. Well, thank you so much, Congressman Tierney. There is no doubt that there are steps that have already been widely discussed that urgently need to be taken and, in my view, in fact, in the view of my organization, the most important steps involve the transformation of U.S. trade policy; and I will be very specific. There is no excuse for Congress, under Democrats, not to have passed a strong currency manipulation bill. The practice of exchange rate protectionism by China and other Asian countries is an abomination—should be an abomination to anybody who styles themselves the champion of the free market. It has been going on for 10 years, at least; it has crippled the American manufacturing base, American manufacturing output, American manufacturing jobs.

We have been talking about this problem since 2002 or so. I can understand why a Republican administration in which the two non-trade policy was called by outsourcing multinational companies refused to act. I don't understand why this Democratic President and this Democratic Congress refuses to act.

The second recommendation, there are already very important Buy American provisions in the stimulus bill. These Buy American provisions need to be expanded to cover all Federal procurement. And I understand there are problems regarding our World Trade Organization obligations. Unfortunately, these obligations may need to be suspended. We face an economic emergency; it is a crisis. That word is used for a reason and times of emergency require emergency measures; and when international obligations like this prevent us from taking common sense measures not only to rebalance our own economy, but to rebalance a dangerously lopsided world economy, then those obligations need to be set aside.

So those are two very specific steps that can be taken this week.

Mr. TIERNEY. If the chairman will give us unanimous consent, I just have a few more seconds, Mr. Nader, I would be interested in hearing your comment on that.

Mr. KUCINICH. Mr. Nader, you may respond to his question, and then I will go to the next——

Mr. TIERNEY. Thank you, Mr. Chairman.

Mr. NADER. OK, thank you.

I think, first of all, the China example is perfect. You can't have free trade with dictatorships. Why? Because dictatorships impose the costs and keep the costs down, like labor costs and prohibition of independent trade unions. So China has not only a dictatorship advantage in terms of trade, but it also has an absolute advantage. The late Paul Samuelson, economist emeritus at MIT, changed his views in a recent academic paper and basically said the costs of outsourcing are expanding beyond the benefits of outsourcing. That is what absolute advantage does.

Third is the under-valuation of the currency, the yuan. Fourth is the rampant criminal counterfeiting of products that are coming into this country from China and other countries. And, finally, there is no consumer protection. There is no consumer protection treaty with China. We are getting contaminated fish, defective tires, ingredients in our pharmaceuticals that are hazardous—in one case it has already killed 200 Americans. There is no consumer protection treaty, so you have a superior advantage of shoddy goods coming in, driving out goods that meet consumer standards in this country.

And then we need a level playing field. The idea of all the Federal subsidies and tax expenditures favoring the fossil fuel industry creates an unlevel playing field with sustainable energy and energy conservation. Part of it is being remedied in Congress in recent years, to be sure, but still the subsidies, for example, to the nuclear energy industry is massive in terms of no nuclear plants can ever be built in this country without 100 percent Federal loan guarantee, according to Wall Street finance firms.

So that isn't true for solar energy, for example. Solar energy doesn't get 100 percent guarantee. And solar energy can be one of the great manufacturing segments of our economy in terms of jobs produced, in terms of innovation applied here, in terms of climate change and other environmental issues, and, above all, in terms of its decentralized nature, contrary to highly centralized fossil fuel and nuclear installations into every community in the country creating jobs, production jobs and maintenance jobs.

Mr. KUCINICH. Thank you. Thank you very much, Mr. Tierney, Mr. Nader.

I voted against the bailouts because I don't believe that Government should be picking winners and losers in the private sector. Now, the testimony that I have heard here from some of the witnesses and, indeed, the debate that goes on between some Democrats and Republicans in the Congress is that the corporate State and the Federal Government are somehow two distinct entities. I want to look at that in light of just one example, today's report, "Tax Deal is Worth Billions to Citigroup; Deal Made to Recover Bailout; Firms Exempted from Rule when U.S. Sells Its Stake." The Federal Government quietly—quietly—agreed to forego billions of dollars in potential tax payments from Citigroup as part of a deal announced this week to wean the company from the massive taxpayer bailout that helped it survive the financial crisis.

Now, one of the concerns that I have had is that the personnel between corporate America and the Federal Government has basically been interchangeable at the top. You look at Citigroup, they are in the top level, decisionmaking level in the Government; there are people who used to work for them, as is the case with Goldman Sachs. So you wonder why there is very little change between one administration and another. You look at the bailout, the terms of the stock ownership; you look at TARP, post-TARP, the relationship between the Federal Government and the corporations.

If I look at what happened here with this Citigroup deal, you would assume that the Government, if it is taking ownership, would protect the taxpayers, first responsibility. But the Citigroup deal that was exposed today, the Government, instead, is protecting shareholder interests over taxpayer interests, to ceding billions of dollars in taxes. So it raises the question whether or not we have had a merger that has occurred here, kind of a hostile takeover of the Government through the TARP by Wall Street. You want to talk about moral hazard? How about the destruction of a democratic system using our own money? This is why TARP was dangerous, because it is not only the Government reaching in to direct private enterprise, but it is private enterprise reaching in the other way to direct the Government. Who owns whom? This is one of the answers to the questions. Citigroup has a blank check. And I don't think it would be different with a Democrat or Republican administration; it is the same thing.

I have a question for—and I speak as someone who has been following these issues for years, and we are going to—fair warning for the Treasury Department, which is coming here tomorrow. They are going to be asked a lot of details and for documents on this Citigroup thing. I said it before in my opening remarks. Matt Taibbi, in Rolling Stone, did a pretty good piece on detailing the financial connections between Wall Street players, how they are now in the administration and how policies seem to follow ways that help Wall Street at the expense of Main Street.

Now, the question to Mr. Nader and Mr. Weissman. Some have said that the Federal Government did impose conditions before bailing out the companies. With respect just to the four companies which the United States now owns, how would you assess the significance and effectiveness of those conditions the United States did require, and what should the Government have required of TARP recipients but failed to demand?

And then I will invite others to comment if we have time.

Mr. NADER. Let me ask Mr. Weissman to come up and answer that part of the question. Thank you.

Mr. KUCINICH. Mr. Weissman has already been sworn. You may proceed.

Mr. WEISSMAN. Thank you, Mr. Chairman.

I think you raise the core distinction in your opening remarks. There were the most minimal standards imposed on the TARP recipients, and I think we should really distinguish between the TARP recipients and those in which the Government took a controlling interest, which, as an aside, is the core issue at this hearing and is completely different from receiving loans. The conditions were minimal. Ultimately, there were some very modest executive compensation conditions imposed. In the case of AIG, they did demand the very short-term CEO step down.

The contrast is with the conditions imposed on General Motors, as well as Chrysler, where there was an extremely intensive review of policies that were being proposed by management, ousting of management, new management has come in that has since come and gone in the case of General Motors. The conditions, however, that were imposed, the scrutiny that was imposed in the case of General Motors I think was admirable. The criteria, though, by which that was applied raises several questions. It is not at all clear what the aim of the task force was in imposing the stringent conditions.

Mr. KUCINICH. Can you give any specific examples of where you think that we lost out on opportunities?

Mr. WEISSMAN. Well, one—well, maybe two. One striking example is that the administration, the Obama administration bragged that it imposed more severe wage cuts on the auto workers, and General Motors and Chrysler, than the Bush administration had done in its negotiations with the auto industry. It makes no sense whatsoever to bring down the wages both of those workers but, more importantly, the standard in the auto industry and manufacturing overall. As owners of these companies—we are not lenders to these companies; we, the public, are owners of the companies; they are are the dominant owners; they are effectively our companies—we have important statutory public policy objectives that we ought to be pursuing. We are, right now, in the midst of climate change negotiations.

Mr. KUCINICH. So whose interest did we represent, then, did the Federal Government represent?

Mr. WEISSMAN. I think in the case of—it is actually a little bit difficult to say, in the case of General Motors, what the objective was. I think the ultimate objective was to keep it as a going concern, just as a going concern, but without regard to why it is the public would want to maintain General Motors as a going concern. In the financial area, I think we actually represented the interest of management and, to some extent, the interest of maintaining Wall Street and the financial system.

Mr. KUCINICH. My time has expired and I try to be fair in the allocation of time here. We are going to have a second round of questions. I want to get back to that and ask other people to join in.

The Chair recognizes the distinguished gentlelady from California, Ms. Watson, for 5 minutes, then we are going to go to a second round.

Ms. WATSON. All right.

Mr. KUCINICH. Thank you, Mr. Weissman.

Ms. WATSON. Thank you, Mr. Chairman. I am going to be very quick on this so that we can get around the second round.

Mr. Nader, I am glad you are back at the table. I missed your first presentation, but if, as you assert, bailed out companies have no legitimate interest apart from Government when Government becomes the dominant shareholder, is it appropriate to re-purpose the companies' objectives and policies toward, for instance, consumer service, environmental responsibility, and worker investment, and to delay the relinquishment that these changed priorities are achieved or protected even if that delays return for functionality or profitability? What is your opinion?

Mr. NADER. Well, I think there is a congruence between statutory purposes and the health of a company like General Motors. After all, it got into trouble, one, because it didn't have fuel efficient vehicles and it had a bad mix of choice of vehicles, relying so heavily on the SUV. It got into trouble because, as Ross Perot said, its management, in his words, "Hates its customers, hates its workers, and hates themselves." It was entirely at cross purposes with what professional management should incur. I could argue also that General Motors' fit and finish got them into trouble, compared to Honda and Toyota. So a lot of the statutory purposes already on the books advocated as not only taxpayer representation for value, but also shareholder power, would enhance the health of General Motors.

This whole area is one of cognitive dissonance. The more the Government helps GM, how does Ford react, you see, which didn't ask for Government help? There are all kinds of conflicts here. But one thing that seems to be sure is that a basic principle of capitalism is that the owners control what they own, and that principle is massive and historically violated by big business that basically says to shareholders, institutional and otherwise, if you don't like the way we run the country—the company—that was a slip—if you don't like the way we run the company, sell; in other words, exit, not voice. And that is why, in response to Congressman Jordan's point—and that is why I am always amazed by people calling themselves free enterprise conservatives. What is say? What is say on pay? There is no say on pay proposed in Congress or by these corporations; it is just a non-binding referendum. It is an opinion poll by shareholders. If shareholders own the company, they should be able to mandate high executive salaries and they should be given a very small staff to do so.

So I have no problems at all in terms of strengthening corporations in this country once they desperately come to Washington and get on their knees for a bailout in terms, as our testimony points out, in terms of exercising shareholder power as a model for the rest of the country—not passive shareholders—as a model for institutional shareholders, who should be at least as aggressive as CalPERS, and also to represent the taxpayer investment; and I don't think they are necessarily contradictory at all.

Ms. WATSON. Let me——

Mr. KUCINICH. [Remarks made off mic.]

Ms. WATSON. Yes, just one more question connected. Thank you.

Mr. KUCINICH. Your time expired, but if you want to—OK, continue with your question. Go ahead.

Ms. WATSON. I wanted to go to Professor Verret. You said that we probably should not have bailed out to the degree that we have. But you know what? It is connected to jobs. Michigan is suffering greatly from unemployment. When I go back to my district, Los Angeles, California, they don't ask me about debt; they want to know what we are doing to get them back to work. So I see the connection between capitalizing the banks and bailing out so that they can hold on to employees. The unemployment rate is unacceptable right now. So can you give me an opinion as it relates to jobs and less bailout?

Mr. VERRET. Sure. In answer to your question, I would say that I share your concerns about jobs and about employment. My concern is about process, is about the ability to keep everything off budget, off the Federal budget. We saw it once before with Fannie and Freddie, and folks said, well, Fannie and Freddie is off budget, they are not on the Federal budget.

Well, they are on there now. And, in fact, they have been the beneficiary of the largest guarantee of these companies. Fannie and Freddie have been the beneficiary of a $400 billion guarantee. This morning the Wall Street Journal reports the Treasury is going to ask for more very soon. So I am worried about this sort of off budget stuff. I think we can help folks through the Federal budget and not have to keep it off budget, because ultimately the taxpayer is going to be left holding the tab anyway, in the future. I think keeping it secret is what I have a problem with.

Mr. KUCINICH. I thank the gentlelady.

Ms. WATSON. I yield back.

Mr. KUCINICH. Thank you very much. Appreciate it.

Mr. Tierney.

Mr. TIERNEY. Thank you.

Mr. Verret, can I just ask you what is your take or your opinion on real say-for-pay by shareholders? Not the referendum Mr. Nader was talking about, but ought they not have the ability to really determine what the pay is going to be of their executives?

Mr. VERRET. Well, right now they do have the power to get rid of compensation committees, and I know that the California Pension Fund and a number of other institutional investors do a lot of good work in targeting compensation committee members that aren't doing their jobs; and they say, look, you have to go and they use their majority voting powers to get rid of them. I think that is a very effective way to do things.

I worry on say-on-pay just because I worry about some special interest shareholders using this power as part of their negotiations with companies, and I think we have seen some shareholders misuse powers to the detriment of all the ordinary Americans that own shares through their 401-Ks.

Mr. TIERNEY. That is a pretty subjective view. You say they are misusing their powers, but they are shareholders, and who is not to take the other argument that they are acting on behalf of those people whose money they are holding and going to drive that interest, which is in fact not special to them. Everybody has a special interest; every shareholder has a special interest. The board of director member who is a shareholder who sits on there and pads the pockets of the executive because he is an executive somewhere else and is going to be reciprocated when the guy whose pay he is jacking up is going to sit on his board and jack his up, that is pretty special interest. I just take note of that on that basis.

Mr. Nader, can you think of any reason why we continue to allow corporations to deduct, as a business expense, from their taxes exorbitant pay for executives? Ought we not look at some point at protecting taxpayers by just saying beyond some point that is not going to be tax deductible?

Mr. NADER. Well, you know, the Congress established a million dollar limit——

Mr. TIERNEY. I meant a real limit, though.

Mr. NADER [continuing]. And they circumvented it with stock options and so forth, so it is like trying to block water going downhill. So if you are going to restrict the tax deductibility of executive compensation, you have to also pay attention to how they are going to circumvent it; and they are very creative in circumventing it.

One thing we have to understand, this whole subject of this committee, Congressman, is that corporations are very fast learners in gaming regulatory and bailout and subsidy systems from Washington, and Citigroup is a perfect example of that in today's Post. They are very, very creative in gaming, so you have to make sure that if you restrict it in one area, you have to take into account other evasive processes.

But I think that if you give shareholders the authority to decide, not just to give their opinion, and you have pension funds and institutional shareholders, that will take care of a lot of the problem. They are not going to approve the pay of $70 million for Goldman Sachs' CEO if they are given the authority. And why shouldn't they be given the authority within their framework? They own the company. But the split between ownership and control, which was pointed out by Berle and Means back in the 1930's, is the way the executives dominate the corporation and strip the owners of control.

The professor just noted that there could be some mischief by some shareholders. Well, they have to get over 50 percent, don't they? If 51 percent is mischief, I don't know what your definition of mischief is.

Mr. KUCINICH. The gentleman desires to engage in a——

Mr. TIERNEY. I am happy to pass that along, Mr. Chairman.

Mr. Verret, I think it is a fair question to you. Fifty-one percent, does that satisfy you that any mischief is at least interpreted differently than what you might view?

Mr. VERRET. Well, the voting rates of shareholders aren't 100 percent, so some shareholders vote more often than others, and folks who hold shares through their 401-Ks don't have time to vote their shares everyday; whereas, the union pension boss has time to vote their shares every day that they do.

Mr. TIERNEY. Do you think it is the so-called union pension bosses that are voting for $70 million pay raises?

Mr. VERRET. In answer to your question, if shareholders valued——

Mr. TIERNEY. I don't think—is it a yes or a no? Do you really believe—do you believe that it is the pension funds and others like that, or the union pension funds that are voting the head of these firms $70 million in compensation?

Mr. VERRET. I think they are voting based on their own interest, and I think they will vote for things based on what they can get from it.

Mr. TIERNEY. Please, Mr. Verret. You are a professor and you know better. All right? Do you really believe that those are the people that are voting a $70 million compensation package for the chief executive officer?

Mr. VERRET. I think they will or will not—I don't know what they are voting for, but I know they will or will not vote based on what sort of deals they can work with the company, and I worry about——

Mr. TIERNEY. I think your credibility suffers a loss there when you answer that way and you are not just forthright on that, because I really have to believe that you don't think for a minute that they are the ones that are voting the $70 million pay packages. And if you do, then, as a good professor, maybe you will go back and look at your documentation a little bit on that.

Mr. VERRET. Well, I would disagree completely. I think that we have seen a lot of collusion between unions and firms on all sorts of deals. So I think they might vote for it if they got some sort of special deal for themselves as well. And I think when unions and boards collide or when governments and boards collide, the taxpayer and the ordinary Main Street shareholder is the one who is left holding the tab.

Mr. TIERNEY. I have to press this a little further. So the only special interest you see sitting on boards are people that represent labor pension groups?

Mr. VERRET. Well, there are all sorts of special interests involved, absolutely, sure. They are not the only ones.

Mr. TIERNEY. Right. Thank you.

Mr. KUCINICH. I thank the gentleman.

While we are having this discussion, I am thinking of all these workers whose pension funds began to evaporate with the fallout on Wall Street and whose pension funds get collapsed in bankruptcies.

This will be the last series of questions here. Start with Professor Eckbo. Your testimony, sir, outlines how the Treasury's passive voting strategy could, in principle, allow a director to be elected with just one vote of a minority shareholder. Would you explain or expand on what you see as the perils of passive shareholding, what corporate tricks or even scandals could fester while the United States is the dominant shareholder? And, as a followup, could the companies repeat the excessive compensation practices, short-sighted vision, and, in some cases, potentially criminal behavior while the United States is the dominant shareholder under Treasury's plan for shareholding? Professor.

Mr. ECKBO. Mr. Chairman, I think it is important to start with the fact that the U.S. corporate system is a board-driven system from a legal perspective, so whatever decisions the boards are taking is going to be binding for the firm. And as we talked about earlier today, shareholder control of its own corporations is a function of how costly it is to replace these board members when they turn out not to be so good.

Mr. KUCINICH. What about the Treasury as a passive shareholder?

Mr. ECKBO. In my mind, when you finally get these large shareholders who have all the incentives in the world to actually take the world and pay the cost of being an active shareholder, which is the problem with the small ones, then we would like Treasury to play that role.

Mr. KUCINICH. To play the role of?

Mr. ECKBO. As an active large shareholder.

Mr. KUCINICH. And what would that mean?

Mr. ECKBO. That means, for example, it means, in my mind, to try to restructure the system on a broad scale to support, to push for election reform for directors. It means go into the company and vote charter amendments, for example, where we take away staggered board provisions; we separate the chairmanship and the CEO position, which is common today in the United States. It is illegal in some other countries because of conflicts of interest that are involved. So you take these actions in order to get—and, of course, you get directors that you think are capable of running the company the way it should be done.

Mr. KUCINICH. Does anybody want to chime in here, any other panelist? Ms. Simpson, what do you think about Treasury's passive voting strategy?

Ms. SIMPSON. I want to just come back to this point about——

Mr. KUCINICH. No, what do you think of that? I know you want to talk about what you want to talk about——

Ms. SIMPSON. It is critical for all shareholders——

Mr. KUCINICH [continuing]. But just answer the question, would you?

Ms. SIMPSON. It is critical for all shareholders to be active responsible owners and to push this governance overhaul, which is absolutely necessary. So majority voting, yes. Proxy access, absolutely. Removal of all the barriers to accountability like staggered boards, super-majority voting, poison pills, you know, there is a list of a dozen or so barriers to accountability and we want all owners to actually engage with these reforms; otherwise we have simply missed a huge opportunity.

Mr. KUCINICH. Anyone else want to join in? Anybody. Professor Verret, do you want to join in?

Mr. VERRET. In part, I wonder how passive it is, just because I know that they have said that it is passive and we have seen that they have a press release about it, but there is no binding regulation about it; and that is part of what worries me, is that there is no binding regulation on Treasury on how it is going to vote, and I think you lose some separation of powers and some accountability to the people and the Congress through that. Treasury also lists some exceptions. It says we won't vote shares, with the following exceptions. Ironically, it lists all the things shareholders would want to vote on; election of directors and dividends and things of that nature. So I think we probably share a concern with respect to——

Mr. KUCINICH. You know, you raise a point as to what is passive. At what point, when you are sitting there as a large shareholder, you pick up a phone and talk to someone, that can have an impact. What is the transition from passive to active? And is passive like a wall saying, we don't want to look, we don't want to hear anything? That, of course, would have some hazards if you are doing due diligence.

Mr. Tonelson.

Mr. TONELSON. Just one really fast point. That is why it is so essential that this Government shareholder role be tightly coordinated with the rest of our economic recovery strategy, because you don't want the situation where Government, as shareholder, decides to push a certain set of policies that may be good for the well being of that particular company if the whole economy happens to be moving in an entirely different way.

Mr. KUCINICH. So you see the position of the Government as shareholder in a broader economic context. In other words, you have to look at economic policy.

Mr. TONELSON. You have to.

Mr. KUCINICH. Not in isolation.

Mr. TONELSON. You can't silo these things anymore. Something that used to be as big as GM, and that still has such a vast supplier chain—and let me say I am not here as the champion of GM. Lots of our member companies have done business with it and, you know what? They didn't find it to be a lot of fun. OK? But a U.S.-owned automotive industry is vital to American economic success. We will not be a prosperous country without a big healthy automobile industry owned by Americans. And the strategy for that cannot be set simply by U.S. Government representatives voting in piecemeal ways on individual decisions and challenges that GM faces as a company. That role has to be integrated with a much broader strategy toward incentivizing more production, more job creation in manufacturing in this country.

Mr. KUCINICH. You know, Mr. Nader used the term cognitive dissonance earlier. I am sure this is something that is troubling a lot of economists and people who try to see a division between the public sector and the private sector. But you are putting your finger on something in terms of looking at the macroeconomic implications of the policies, because if we are told that some firms are too big to fail, if we take that view—I don't happen to believe that. I think that you break them up if they are too big to fail. But since we have that model that we have essentially confirmed the other day, then we better look at the macroeconomics and better play a role in determining that, because, on one hand, we can't say too big to fail and then, on the other hand, say we can't look at what you are doing.

Mr. TONELSON. Exactly. And I will give you one very specific example. No one would like to see GM make a great small fuel efficient car more than me. However, we have to keep in mind that no economy on this planet, in its history, has ever produced small fuel efficient cars profitably while keeping their automotive markets open. It has never happened. The Europeans haven't done it because their auto markets are closed; the Japanese haven't done it; the South Koreans haven't done it. Their markets are closed. The margins just aren't there, and especially when you force American companies into competition with foreign rivals that are either highly subsidized or that put this tight lid on labor costs, you have a total no-win situation. You are forcing GM, for example, to take an absolutely suicidal course.

Mr. KUCINICH. You know, we are in a whole new era here in the era of bailouts, because what we have done, we have actually, unwittingly, created symmetry between our bailout policy and our trade policy, where trade policy does not admit to workers' rights, human rights, environmental quality principles, and with the Government as shareholder trumping taxpayers' rights in favor of shareholders. There is an alignment there with trade policy and bailout policy that could actually result in moving jobs out of this country.

Mr. TONELSON. Oh, absolutely.

Mr. KUCINICH. Actually accelerating the movement of jobs.

Mr. TONELSON. You could create—I am sorry.

Mr. KUCINICH. Mr. Nader and then I am going to go to one final question.

Mr. NADER. Can I just elaborate quickly?

Mr. KUCINICH. Yes.

Mr. NADER. On the China thing, imagine. Just look at this flow: worker taxpayer dollars, small business taxpayer dollars go to Washington; they help fund the bailout of General Motors; the U.S. Government owns 60 percent of GM. GM's policy is to move its future into China; that is going to be its big market. It is already huge. So what happens? If the Government, as shareholder and representative of the taxpayer, plays a passive role, they are basically allowing GM, with U.S. taxpayer support, to dislodge and hollow out communities here, go to China and export back into the United States. Do you see the conundrum here?

These are hard questions, but you certainly, as a matter of principle, don't want to say to workers whose taxes go to Washington and small business that they are going to finance the hollowing out of their communities by GM's declared policy to expand in China and a non-binding promise that, temporarily, they won't export back into the United States. But everybody knows that is not binding. And if the U.S. 60 percent share doesn't kick in, that is the way it is going to go. I mean, this is unbelievable. We are stripping down our economy on behalf of manipulative dictatorships who determine costs. No marketplace determines labor costs in China. These are dictatorially determined costs and we call it free trade.

Mr. KUCINICH. Mr. Tierney for 5 minutes.

Mr. TIERNEY. No, I don't want 5 minutes.

Are you, Mr. Tonelson and Mr. Nader, then advocating that we just get out of General Motors or that we differently exercise the authorities of power that you have as a basis of your stock or your stake in the company?

Mr. TONELSON. General Motors, just speaking for USBIC, has to be run in the way that will give it a real chance for success. You absolutely needed a viability strategy, but the Federal Government's viability strategy, the Obama administration's viability strategy failed completely to acknowledge the globalized nature of automotive production. It just ignored that; it didn't exist. Let's make believe it hasn't happened for the last 20 years. How in the world can that succeed? How can you expect General Motors to succeed in that context, with that lack of forethought?

Mr. TIERNEY. Mr. Verret, what do you say to all that?

Mr. VERRET. Well, I don't profess to be an expert on the automotive industry, so I don't want to go outside of my expertise too much. But I will say——

Mr. TIERNEY. Give it your best shot. Go ahead.

Mr. VERRET. Sir?

Mr. TIERNEY. Go ahead, give it your best shot.

Mr. VERRET. Yes. I will say that I worry at taking the macro view. I do worry about both the effects of bailouts, the incentive effects. You know, we bailed out Chrysler before and I think it is a supportable proposition that the reason why we had to bail out Chrysler and GM was in part because they saw that they had that safety net, and I think it led them to take more risks than they needed to.

And I think that is why—I know we focused a lot on what we disagree about, but I admire the chairman's vote on the bailout; I think it took a lot of courage and I think that is an admirable vote and a way of thinking that I think we should consider more. And I worry about the off-budget nature of some of the sorts of deals that governments and business tend to make when they get in bed together.

Mr. TIERNEY. Thank you.

I yield back, Mr. Chairman. Thanks.

Mr. KUCINICH. This is going to be the final question of this hearing, and this would be to any witness that would care to respond.

Is Treasury the only, or even the best, entity to control the U.S.' shares? Now, Professor Eckbo calls attention to the U.K. approach in your testimony in establishing a special corporation to exercise the government's shareholding, improve transparency, and provide clear lines of accountability. I know that Ms. Simpson is familiar with this as well.

I would like to ask any of the witnesses that they think about this concept and, in particular, Mr. Nader and Mr. Weissman, to comment on what model might be implemented to facilitate the broad principles or best practices that you outline in your testimony.

So, Mr. Nader, would you want to comment on that, Mr. Weissman, and then maybe go back to Mr. Eckbo and Ms. Simpson?

Mr. NADER. I think everybody knows eventually the Government is going to sell its shares in General Motors and these other companies, so my view is, instead of having another delegation—from the congressional to the executive to some trust fund—that the Treasury, under clear standards provided by the Congress, behave as a shareholder with multiple obligations, which I don't think are, in the short-term, conflicting. They have to represent not only taxpayer value, shareholder value, but the whole purpose of bailing out GM, the main purpose is to save communities and save jobs and keep a major factor of an industry in this country.

So inescapably, when GM came to Washington and prostrated itself in front of the Congress, it went into the political arena. There have to be political judgments because of all the public investments, and those judgments can be made in the most enlightened form through congressional participation, openness, and standards of accountability.

For the record, I would like to put in this review of Corporate Governance, the Role of Institutional Shareholders by Robert A. G. Monks, who arguably——

Mr. KUCINICH. So ordered.

Mr. NADER [continuing]. Arguably is the leading shareholder activist in the country. And he has some very good recommendations to the point of your question, Mr. Chairman.

Mr. KUCINICH. Without objection, so ordered.

[The information referred to follows:]

Oversight and Government Reform Committee

e Government as Dominant Shareholder: How Should the Taxpayers' Ownership Rights be Exercised?"
2154 Rayburn House Office Building
Wednesday, December 16, 2009 10:00 A.M.

Submitted for the reco[rd]
by Ralph Nader

A REVIEW OF CORPORATE GOVERNANCE IN UK BANKS AND OTHER FINANCIAL INDUSTRY ENTITIES

Response to Chapter 5 – The Role of Institutional Shareholders: Communication and Engagement

Robert A.G. Monks 30 September 2009

"What is wrong with the British and American system is that far too many shareholders, both institutional and individual, do not behave like owners." *The Economist*, May 5, 1990.

How far have we moved, if at all, from this state described by Rupert Pennant-Rea twenty years ago? The Treasury Committee suggests there has been inadequate progress, if indeed there has been any.[1] The Walker Report addresses the policy considerations underlying institutional responsibility which he styles "stewardship". {5.7} The potentially highly influential position of significant holders of stock in listed companies is a major ingredient in the market-base capitalist system. It needs to be accorded an at ***least implicit social legitimacy***. As counterpart to the obligation of the board to the shareholders, this implicit legitimacy can be acquired by at least the larger fund manager through assumption of a reciprocal obligation. This obligation should in particular involve attentiveness to the performance of the investee companies over a long as well as a short term horizon. On this view, those who have significant rights of ownership which enjoy the very material advantage of limited liability should see these as completed by a duty of stewardship. "(emphasis added) To Shareholders in a typical public company in America or Britain – call it Anglo-Saxon Inc – a share is now little more than a betting slip. It is bought at what a shareholder thinks are good odds, to provide winnings that he hopes will be large. The notion that he owns part of Anglo-

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[1] The Treasury Committee Report provides an answer in the affirmative. . "Institutional Investors have failed in one of their core tasks, namely the effective scrutiny and monitoring the decisions of boards and executive management in the banking sector, and hold them accountable for their performance." House of Commons, Treasury Committee, Banking Crisis: Reforming corporate governance and pay in the City, 12 May 2009 # 179. "We also believe that ne of the most important lessons from the crisis is that institutional investors responsible ownership needs to be strengthened in order to be fit for purpose. UNEP Finance Initiative, Fiduciary Responsibility, July 2009, p 11.

Saxon Inc makes as much sense to him as it would the average gambler to imagine that he owns part of Lucky Lady, running in the 2:30 tomorrow afternoon."[2]

Today's consolidated US/UK shareholder roster typically shows 30% of the outstanding shares are invested in index mode and a further 20% are invested pursuant to a variety of computer-driven algorithms, generally in the search for value anomalies among various industries, companies, and currency denomination. In both these cases, choices are made by mechanistic formula and do not reflect a human being's decision to buy or sell. Another 30% of investors know the stock market solely through their friendly broker. Although brokers are of all kinds, they are paid if their customers buy or sell, the more frequently the better. None of these groups has the long term, informed engagement with their holdings necessary to be activist owners.

So, quite quickly, we are left with 20% of the total who might be thought of as real proprietors and even potential activist investors. These are the owners who consider the long-term disposition of their funds; who follow the conduct of their portfolio companies; and who are prepared, if necessary, to take steps to assure that defects in the governance or strategy or execution by managements are addressed. In the simplest terms, these are the only shareholders who actually know the companies in which they hold shares. McKinsey, the premier consulting firm for corporate management, describes these "intrinsic investors," {5.30} as basing their decisions on a deep understanding of a company's strategy, its current performance, and its potential to create long-term value. We can begin, at this point, to appreciate Lord Myners recent suggestions about the possible desirability of two classes of stock – that, ironically enough echo Proprietors & Punters.

However, even this one investor in five who may be considered a real owner is furthered diluted by the dirty little secret of benign neglect of conflict of interest. Let's briefly re-screen the major categories of institutional investors from the perspective of activity *encouraging conflict of interest* and thus *inhibiting responsible activist ownership*.

• A "golden rule" among company executives at corporate pension funds goes as follows: My pension fund will leave you alone so long as your pension fund leaves me

[2] *The Economist*, op.cit.supra

alone. In the United States, there has never been an activist intervention by a pension fund governed by ERISA. *Never.* For its part, the U.S. Department of Labor has an unblemished record over the last twenty five years of *not* bringing suit against a fiduciary having conflict of interest for failure to monitor portfolio companies.[3] I am unaware of any government action otherwise in the UK.

• Most trustees at public pension funds are appointed or elected and are thus both politically vulnerable and politically conflicted. Why would any company locate new jobs in a region that uses its pension resources to oppose management?

• Conflicts abound equally for financial service firms. Why would any company go out of its way to talk with analysts from an investment group company that does not support it? Why would a "focus company" hire such investment group to run its retirement program?

• Banks and Insurance companies have a myriad of sometimes conflicting connections with companies, the securities of which they hold in trust accounts. Often the financial importance of the trust arrangement is substantially smaller than that of the other business concerns.

• Many of the trustees of our august universities and foundations depend on the favor – collegial, psychological, and financial – of the enterprises whose securities comprise their endowment.

Passing from institutions to the leading individual investors, the "collective action problem" is daunting. Warren Buffet recently said "when we own stock, we are not there to try and change people"[4]. Warren "rescued" Solomon Brothers as a minority owner. While he made an adequate return, the overall impact of his effort was to make money for people whose conduct caused the problem in the first place. The Gates Foundation professes no interest in activism. Volunteering to be a leader of shareholder activism created unwelcome problems of publicity and conflict of interest for Fidelity's Ned Johnson; Lloyd Blankfein, CEO of Goldman Sachs, says simply -"it doesn't make

[3] United States Government Accountability Office, PENSION PLANS Additional transparency and other Actions Needed in Connection with Proxy Voting (GAO-04-749 August 2004)

[4] Global Edition of the New York Times, May 9-10, 2009

business sense for us or for our customers." Frank Cahouet[5], then CEO of the UK owned Crocker Bank, wrote me on August 17, 1995; "We are very reticent to position ourselves as an activist shareholder in domestic or international securities. The problem for us is how we are perceived by our customer base. The risks are such that it probably does not make sense for us to take an aggressive position. I can imagine many of your partners do have a lot more freedom wince they apparently no other business interests with portfolio companies." Can Cahouet's concern for his customers' reactions be fully met by "***implict social legitimacy***" for activism, or will more be required – like legal obligation – in order to assure a level playing field among competitors? Alan Greenspan speaks for the conventional wisdom: "After considerable soul-searching and many congressional hearings, the current CEO-dominant paradigm, with all its faults, will likely continue to be viewed as the most viable form of corporate governance for today's world. The only credible alternative is for large — primarily institutional — shareholders to exert far more control over corporate affairs ***than they appear to be willing to exercise.***"[6] The emphasis is mine, added to demonstrate Greenspan's apparent ignorance of fiduciary law. He writes as if obedience to the law is a discretionary matter for fiduciaries. Therefore, activist fiduciaries would be perceived as "volunteers", almost "officious intermeddlers" if they depart from the conventional. Yet Greenspan does, however inferentially, confirm the right place to begin.

The core problem has been the disappearance of any practical or legal respect for the fiduciary standards (even for Frank Cahouet, a profoundly ethical man) that ensure a beneficiary of the loyal competence of the person responsible for managing his property. We have tolerated conflicts of interest throughout the commercial system with the result of enriching service providers and impoverishing beneficiaries. Worse, this regulatory neglect has placed the conscientious fiduciary at a competitive disadvantage.

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[5] In the interest of full disclosure I grateful acknowledge that Frank Cahouet, later CEO of Mellon Bank, has been a friend and classmate for the last 65 years. I know of no one with greater personal integrity. I will use his name throughout this memorandum in order to personalize the difficulties that fine people, responsible for fiduciary institutions, encounter under the present regimes of failure of enforcement of fiduciary duties.

[6] Greenspan, Alan, Remarks at the Stern School of Business, March 26, 2002

We arrive at the current place where "activism" is not generally attractive, either from the perspective of value adding incentive or of avoiding discipline or fine for fiduciary failure.[7] Simply, the "carrot" is not sufficient inducement and the "stick" is insufficiently daunting. The result is that – with a few honorable exceptions - TIAA/CREF in America, BTPS and Hermes in the UK – activism has been limited to union and public employee pension funds, which – notwithstanding their virtues – do not appear to have the experience or orientation necessary to act as credible maximizers of shareholder value. In sum, only the least credible tranche of shareholdings are prepared to act for the class as a whole; the preponderance – for their own reasons – prefers non action.

This systemic dysfunction necessitates the involvement of an external catalyst – government. Only government can definitively locate the responsibilities of shareholders – shares loaned, shares sold short, shares whose vote is contracted away from the economic beneficiary, and – not least – Government as shareholder – UKFI. There is need clearly to place responsibility for stewardship on one of the parties in the fiduciary chain. The pattern of trustees delegating functions is well established; often the voting responsibility is de facto delegated to a voting service. If active ownership is to serve its intended purpose, there needs be a single responsible body. Nor can a UK regime bind institutions with domiciles elsewhere. As the Walker report duly notes, a voting regime can only be imposed on UK domiciled funds. "The aim is to embed commitment to the Principles of stewardship (on a "comply or explain" basis) on the part of UK-authorized entities and thereafter to encourage voluntary participation by SWFs and other non-resident investors on the basis that this is likely be in their own interest and in that of their clients as ultimate beneficiaries." {5.40}

Short term activists – arbitrageurs, "locusts", hedge funds – need no encouragement. Their business model rewards thrusts into the market place. We are left with two components of potential long term activists – the unthinking index and

[7] An honorable exception is the late Alastair Ross Goobey, who, while CEO of Hermes Investment Management, devised a business scheme pursuant to which those to whom he was responsible were enriched at the same time as his subsidiary activist funds, initially Hermes Lens Asset Management, introduced activism into the UK market place. His view was that index investors have no choice but to allocate assets to assuring the continuing integrity of the market place in which they invested.

computer shareholders and the activist portion of McKinsey's "intrinsic" holders. They have very different characteristics. The index funds are in competition with active managers for the portion of investors funds allocated to equity. One of the principal competitive advantages they have is lower costs. If the index funds are to be an element in the activist shareholder of the future, some economic arrangement will be necessary in order not to prejudice their competitive posture. Their perspective will inevitably be systemic. Following the guidance of Alastair Ross Goobey, they will relate to the market place as a whole, they will not usually focused on individual companies. Alas, there is no clone of Alastair. We will need to overcome present reluctance of indexers with carrot or stick. The intrinsic holders, by contrast, will focus on individual companies. Probably, their incentive structure always needs to be reconsidered. Do we want two kinds of activism? And if not, which one?

The Institutional Shareholders Committee ("ISC") is comprised of industry based associations of institutional investor. Whether of not a particular fiduciary is an insurance company or a pension fund or a mutual fund is not germane to its appropriateness as an activist investor. Each institution will inevitably have holdings that are indexed, that are manager by computer program. Most will have some intrinsic investors. The ISC has no particular credibility or competency in being responsible for passive or intrinsic shareholder activists. While there have been instances in the past of ISC activity focused on particular companies and there have been leaders – Mike Sandland of Norwich Union and Donald Bryden in his Barclay's days come to mind – with ambitious agendas, overall it has been rare that the ISC has committed substantial time or resources to governance challenges. In light of the incongruence between the institutional classification of its component members and the nature of the two kinds of potential activists, it must be questioned whether ISC is the appropriate agency to carry this work forward.

The threshold question must be whether we feel stewardship objectives can be achieved within the current framework of "comply or explain" or whether significant alterations will need be made to the incentives and penalties governing the on going system. There are such a myriad of conflicting considerations that new transcending and binding resolution has appeal. We have to deal with real problems – how is our hypothetical honorable chief executive going to reconcile stewardship with his customers' reasonable expectations if there is not unequivocal requirement that his competitors comply with the same requirements. How are we going to induce those institutional categories, strangling in conflict of interest, without legal insistence that they act as stewards solely in the interest of their beneficiaries? Is it fair to impose a burden of additional expense on "stewards" without making possible a reallocation of rewards?

Does the critical voice have the ring of truth? "Unfortunately, Walker's proposals lack teeth and risk becoming nebulous when economic health returns and investors must look to prevent the next crisis, not cast an eye over their shoulder at the last. What will they really achieve in seriously promoting long term investment? Where is the 'incentive' for the ultimate shareholders – the institutional investors – to become owners with their eyes fixed firmly on durable returns and their service providers clearly aligned in this direction also? (nb. Fund manager votes against corporate management remain pitifully low).[8]

With Allen Sykes, I have elsewhere[9] articulated four comprehensive proposals in aid of a system of effective stewardship:

· Governments should affirm, in support of the fundamental principle that there should be no power without accountability, that creating an effective shareholder presence in all companies is in the national interest and that it is the nation's policy to aid effective shareholder involvement in the governance of publicly owned corporations. A national level Council should be created so as to ensure authorities, stock exchanges and other similarly involved entities.

· All pension fund trustees and other fiduciaries (insurance companies, mutual funds,) holding shares must act solely in the long-term interests of their beneficiaries and for the exclusive purpose of providing them with benefits. The scope of required shareholder activism is to ensure, on a continuous basis, the functioning of an appropriate board of directors.

· To give full effect to the first two proposals institutional shareholders should be made accountable for exercising their votes in an informed and sensible manner above

[8] Hugh Wheelan, We must incentivize long-term investment to help prevent systemic risk, Responsible Investor, August 4, 2009. http://www.responsible-investor.com/home/article/systemic/P1/

[9] Capitalism without owners will Fail – A policymakers guide to reform. Centre of the Study of Financial Innovation.

some sensibly determined minimum holding ($15m/£10m). Votes are an asset (voting shares always have a market premium over non-voting ones). Accordingly they should be used to further beneficiaries' interests on all occasions. In effect, the voting of all institutionally held shares would be virtually compulsory.

· To complete and powerfully reinforce the other three proposals shareholders should have the exclusive right and obligation **to nominate** at least three non-executive directors per major quoted company.

Our conclusion is that involvement by the full spectrum on institutional investors – without which the legitimacy of ownership activism is seriously diluted – is only possible through explicit legislation and commitment to enforcement by all branches of government. Allen Sykes and I speak to the "stick" aspect of incentivizing institutional stewardship.

Our approach can be expanded (and improved) by focusing a bit on the carrot side. I have cited often the "Punters or Proprietors" article in *The Economist* of twenty years ago. It may be that the passage of two decades has managed to change a conjunction and today the answer is Punters AND Proprietors. It must be clear that amidst the panoply of stock ownership, there is a difference of kind between those who invest through impersonal mechanism and those whose investments are a matter of sentient choice. Lord Myners suggestion of two classes of stock might well reflect this difference. A further dichotomy might be drawn between those shareholders – passive and active – who chose to function as stewards and those who do not. Again, dual classes of stock might be appropriate. It is well to remember that when Warren Buffett invests in marketable securities, he is usually able to secure a special classification that reflects the value added by his involvement. Nor has the dual class prevalent in Scandinavia lowered long term equity returns. Even American scholars comment favorably on such a notion: "Providing long-term shareholders a greater number of votes per share should become a permissible option."[10]

Further improvement would result from the determination that stewardship, being in the interest both of the corporation and of society, is appropriately an expense of the

[10] Lipton, Lorsch, Schumer's Shareholder Bill Misses the Mark, WSJ, 5/12/9

corporation. If a sum is to be made available for those willing to undertake the costs and exposure of stewardship, there would be reduced difficulty is enlisting the index funds to perform the key long term role. It might well be that this is the best answer, as what is wanted is both long term stewardship and a perspective for the investment world as a whole, in contrast to individual companies.

This paper asks the question

- Is there genuine commitment to an ownership based governance system? [It must be said that no such commitment exists at present.] If so

The paper suggests two main policy initiatives:

- There must be effective enforcement of existing law so as to require fiduciaries to take appropriate action to protect and enhance the value of portfolio securities, and
- There must be arrangement for financing "activism" either as an appropriate corporate expense or as a designated portion of the investment management fees.

Mr. KUCINICH. Anyone else want to join in? Mr. Tonelson.

Mr. TONELSON. The Treasury Department has absolutely no expertise in fostering productive activity, in fostering wealth creation; it is not the Treasury's job. It is not their fault, but they shouldn't pretend that they have that expertise.

Second point is that——

Mr. KUCINICH. So what do we do, then, with this situation we are in right now?

Mr. TONELSON. These responsibilities have to be given to those sections or those agencies that have that competence. And if we can't find them, or in the right combinations, new forms have to be created.

But one other critical point. If the U.S. Government is not—if it doesn't have a voice in making these critical decisions that will literally make or break critical industries, in a globalized world economy, those decisions will be made by foreign governments, and their first priority will not be the well being of the American people or their economy. So we have no choice but to act. Failing to act amounts to making policy that will damage us grievously.

Mr. KUCINICH. Before I go to Professor Eckbo, I would like Ms. Simpson to comment on this. Your fund deals with many troubled companies. How do you handle that, in terms of the interest of your members?

Ms. SIMPSON. What is critical to this is separating out the different objectives. CalPERS's sole purpose is a fiduciary objective; we are there to invest on behalf of the beneficiaries. The U.K. model is intended to separate out government's interest for addressing political issues, which are quite legitimate from investment objectives; and, as an investor, it sets out in its mandate that it will vote, that it will engage with companies, and that political questions will be referred to ministers for proper political judgment where ministers can be held accountable.

So, on CalPERS's side, we would like to see the fiduciary part of the agenda taken forwards and, as we said earlier, would welcome the Government as an owner working alongside us with a fiduciary objective.

Mr. KUCINICH. OK.

Professor Eckbo.

Mr. ECKBO. My recommendation of the U.K. FI as a model was very much because I wanted a separation between the Government, the political influence over the management of the shares, per se, and it creates more transparency and more responsibility on the part of the trust or the corporation that you are setting up. I also said in my testimony that I would probably put all the shares in the same unit, both the banking shares and the auto shares, because I don't see a tremendous difference in terms of the qualifications of the people in that trust that they need in order to manage that trust properly.

I just wanted to make one comment, if I can, on this issue that you raise, which is very important. If I, as a taxpayer, would like to subsidize employment in Michigan, should I do it through my ownership stake in GM?

Mr. KUCINICH. By what, sir?

Mr. ECKBO. Through my share ownership in GM. Should I use GM as a tool, as a taxpayer, as a tool to further my goals to get employment subsidies in Michigan? In my view, sometimes you can have your cake and you can eat it too. If you operate GM, as we heard across the table, to maximize the value of GM, I think the U.S. Congress will also have more funds to do its goals, which is to subsidize employment in Michigan. I don't think we have to tie the two together, necessarily.

So I think the answer to your question should you be an active investor, I say yes in the governance area. People say what about these other social goals that you are pulling in, the macro economy and the employment record. I am saying we should probably separate the two, in my mind.

Mr. KUCINICH. Well, you know, it is an interesting point you raise, because what has happened in the latter part of the 20th century, a whole body of investment information came alive dealing with socially responsible investing, and that is there was an understanding that your investment choices had a social impact; and that social impact could be monetized.

Mr. ECKBO. Right. I agree with that. The Congress also operates under the—it needs revenues to further its goals, and I think the tax revenues that you are looking for can be maximized by having these corporations do their jobs as well as possible within the private sector. So I think mixing those two could be costly.

Mr. KUCINICH. OK, now, Ms. Brown, you have been very patient sitting there. Would you like to comment on this, or is there anything that this discussion—that has occurred to you that you would like to comment on or say?

Ms. BROWN. I would only note that the work that we currently have underway, we are looking at the issue of the Government says it has taken a hands-off approach. We are actually looking at what the Government is actually doing in all of the institutions that have received exceptional assistance. So we are looking at Bank of America, Citigroup, AIG, GM, Chrysler, GMAC, as well as Fannie Mae and Freddie Mac.

So we are actually looking at kind of what the Government says it is doing and what it is actually doing. And I would note that when it comes to the Government being a passive investor, the Government has been involved in changing the board structure in certain situations. If you take AIG, for example, there is primarily a new board in place. The trustees had a role in identifying members for the board; they did an analysis of what they thought the new board needed to look like, the expertise they needed to bring into the board. And I would also like to note that when it comes to AIG, there is a provision that if AIG does not pay four consecutive dividend payments, the Government has the right to vote two members to the board of directors.

Mr. KUCINICH. Thank you.

Last question to Mr. Weissman. Is there any practical advantage the Government now has as a result of being a dominant shareholder that it did not have before it became a shareholder?

Mr. WEISSMAN. [Remarks off mic.]

Mr. KUCINICH. Could you speak directly into the mic so we can hear you?

Mr. WEISSMAN [continuing]. The question that you have been raising, and I wanted to disagree with Professor Eckbo on a comment that is in the GAO report. The GAO experts consulted said that the Government should manage its shares as if it were a commercial investor. The Government is not a commercial investor. We did not get into General Motors, AIG, Citigroup because we thought there was a profit opportunity there. We made a policy decision that there were certain broader implications that required the continued existence of these firms. That suggests that, as we manage our shareholding opportunity, we have to take into account exactly those same broader policy considerations.

To your previous question, I think that means, therefore, that you do not rely just on Treasury to manage the share decisions, you involve agencies like EPA or NTSA or Department of Commerce, if they are appropriate. Also, I think it speaks absolutely to the need for Congress to have much more oversight and engagement in this, because it is not going to come, as we see now, from this administration.

Finally, to the point that you raised at the outset that is also related to this, we have to address the issue of exit. We now have the exit strategy emerging with Citigroup. There has to be some standard about what the exit is, it can't just be that we got in to help you out for a little while; we will get out whenever it is convenient to you. The you, the companies are us, the Government. The exit decision has to be managed in terms of what benefits the public and the Government interest in these corporations, not in the interest of the corporations themselves.

Ms. BROWN. Chairman, could I clarify?

Mr. KUCINICH. Go ahead, Ms. Brown.

Ms. BROWN. The comment in our statement about the commercial manner, this was not GAO's assertion that is how it should be; that was part of a discussion of how the Treasury explained they are managing the investment. So we were not endorsing that approach, but simply saying this is how it is being managed.

Mr. KUCINICH. I understand. It is a matter of record now.

Mr. Nader said he wanted to make a comment and then we have just been notified that I just have a few minutes to go make a vote, so if you would make a brief comment.

Mr. NADER. OK, very briefly. Here is the conundrum. The Government says they want to be passive investors. There is no such thing, when you own 60 percent of the company, of being a passive investor without tilting the dynamic in favor of the non-passive or the commercial investors. Let me give you an example. Proper role for the Government should have been to deal actively with who is going to be on the board of directors and who is going to run General Motors, because, historically, General Motors has been run for the last 60 years by finance executives or marketing executives, not by engineers, the way Henry Ford and Chrysler and others started the auto companies. That, of course, degraded the concept that most people who know the industry believe is central to the recovery of the auto industry; it is called product, product, product.

So now GM is run by an ex-telephone executive with a lack of distinguished members of the board of directors. They have just fired the replacement for the original CEO, Fritz Henderson, and there is chaos at the top. So this is what happens when the Government, which has major responsibilities for GM's recovery, takes a standoffish position. And it would be good for the Government Accountability Office to provide Congress with information as to the degree, if any, the Government ratified these lack of distinguished boards of directors and the top management of GM.

As Automotive News—which is no patsy for the industry, but it is an industry trade journal—has said repeatedly, especially in its current issue, General Motors needs an auto guy; it needs somebody who knows automobiles, production engineering, and innovation.

Mr. KUCINICH. What a thought.

Mr. NADER. On that point, I want to submit to the record a report that we did a couple years ago called Innovation and Stagnation in Automotive Safety and Fuel Efficiency.

Mr. KUCINICH. Mr. Nader, we will accept that for the record. I am going to have to——

Mr. NADER. Just one sentence.

Mr. KUCINICH. I am going to have to——

Mr. NADER. The theme is that General Motors has been denying the practical innovations that its major suppliers have been putting forth for decades, and that is a management failure.

Mr. KUCINICH. I want to thank you for your testimony. We have another vote and we have covered a lot of the territory today.

This is the Domestic Policy Subcommittee of Government Oversight and Reform. Our topic today has been the Government as Dominant Shareholder: How Should the Taxpayers' Ownership Rights be Exercised? We have had a distinguished panel. I appreciate each and every one of you participating. You have opened up other areas for inquiry which this committee will address. Tomorrow we are going to have Treasury here to testify and, as I said earlier, we are going to be asking them about a lot of things, including this Citigroup development.

The committee now stands adjourned. Happy Holidays.

Mr. NADER. Thank you, Mr. Chairman.

[Whereupon, at 12:53 p.m., the subcommittee was adjourned.]

[Additional information submitted for the hearing record follows:]

Innovation and Stagnation

In Automotive Safety and Fuel Efficiency

By Rob Cirincione

Preface by Ralph Nader

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Preface by Ralph Nader

As was the case in the late nineteen sixties, it is long overdue for the American people to send a determined wake-up call to the domestic auto industry, now represented by General Motors, Ford Motor Company and DaimlerChrysler. Then, there were many automotive engineering advances long on the shelf kept out of vehicles where they could have saved lives, reduced toxic air pollution and increased fuel efficiency. Today, there is another generation of backlogged engineering advances well suited for commercial application and widespread diffusion. Today, as was the case 40 years ago, auto company top management stands in the way of this new age of benign and efficient automotive technology.

What has happened between the first generation of successful technology-applying regulations and the present generation of motor vehicles? With few exceptions, a vast wasteland of technological stagnation and junk engineering from domestic automakers destroyed over three decades of opportunities for increasing the health, safety and economic efficiency of the motoring public. This "dark age" of the domestic motor vehicle industry was not the result of a series of omissions. It was the product of a deliberate expansion of the auto giants' power to block each and every stimulus, every prod and every dynamic process which would have jolted these behemoths out of their complacent, myopic stupor.

Consider the enormity of this prolonged executive obstinacy even against the necessities of their own commercial objectives, not to mention their responsibilities to minimize the damage from their products to people and society. During this period, the Big Three, with all their autocratic hierarchical bureaucracies, managed to continue losing market share to foreign manufacturers, now down to about 60% from the postwar time when they started at 100%. General Motors and Ford are experiencing massive annual losses, which would be even more immense absent their profitable financing arms. Their bonds have been downgraded to junk status—something unthinkable a decade or two ago. Their stock prices are near rock bottom with total valuations smaller than an upstart software or search-engine company. Their contract obligations with their workers are starting to shatter, undermining the stability of management-labor relations.

One might think that such a state of affairs would itself constitute an internal wake-up call to change directions and provide annual value improvements in their products on matters that count. No way. Notwithstanding advertising campaigns representing mere words, it is still business as usual. Still bringing up the rear guard behind foreign producers. Still tiptoeing toward securing indirect subsidies from Washington.

Unwilling over the years to regenerate themselves from within their ranks, despite substantial investment, marketing and engineering/scientific resources, top executives managed to mismanage and waste these estimable assets, reserving their energies to blockade external pressures that would have saved them from themselves, from their own ineptitude.

In a systematic campaign utilizing their varieties of political power, the auto manufacturers, together with their dealers and sometimes the United Auto Workers, froze regulatory activity in both NHTSA and EPA into obsolescence and even on occasion rolled back simple standards (such as bumper protections requirements) as if to rub in their supremacy over Washington, D.C. Auto management worked overtime to support legislators and candidates for Congress and the White House who pledged to take the federal cop off the corporate beat. These corporate bosses refused to recognize that up-to-date regulations could enhance their competitive position *vis-à-vis* their European, Japanese and Korean competitors. Domestic companies would have fallen further behind their foreign counterparts on fuel efficiency if the 1975 fuel efficiency law did not push them to modestly less gas guzzling models.

Not content with shutting down the regulatory prod to innovation, the auto executives also drove to eliminate competition, first through product fixing of their emissions systems and then through partnerships between Uncle Sam and the Big Three during the Clinton and Bush II Administrations. This strategy was a three-fer. It tapped into tax-payer money subsidizing alleged research for improved vehicles, legitimized collusion and avoided the antitrust laws banning such agreements, and replaced any regulatory moves with the argument that they were in partnership with the federal government. The result was to erect a barrier to competitive stimulation of innovation.

Their formidable lobby in Washington, replete with campaign funds, dealer political action committees and the powerful industry apologist, Democrat Congressman John Dingell strengthening their Republican allies, stopped any effort in Congress to recharge the General Services Administration into upgrading its safety, fuel and emissions specifications for its fleet purchases over the past twenty years. This occurred even though the GSA, under the leadership of Administrator Gerald Carmen, advanced air bag installations through fleet purchases in the mid-Eighties under Reagan.

Having nullified both the internal and external environments that would have pressed forward toward engineering excellence, the domestic Big Three reverted to their age-old profit formula. They jerry-built junk, profitable junk, called SUVs. The SUVs, as prize-winning New York Times auto reporter, Keith Bradsher, described in his book, *High and Mighty*, exacerbated the worst of Detroit engineering, turning the clock back on safety, fuel efficiency and emissions. They sold a mirage of safety, the status of size and huge horsepower and less cramped interiors. They invested tens of billions of dollars into more powerful and wasteful engines. They made up for declining market share with higher profit margins on vehicles sold. SUVs were the opiate of the auto executives, making them more complacent and sluggish during a lengthy period of stable gasoline prices.

Now the price of oil and gasoline is rising and the motorists may be awakening. So too should shareholders awaken. So too should the UAW awaken and drop its self-damaging support for auto management's opposition to higher CAFE standards. So too should the insurance industry and the engineering profession awaken to their loss prevention missions. So too should motorists raise their expectations for the kinds of vehicles they should be able to purchase in their own multiple interests. So too should political candidates and incumbents make the state of motor vehicle engineering a major political issue, extending to health, safety, efficiency and beyond to global warming, the lack of modern mass transit and geopolitical entanglements abroad.

This report—*Innovation and Stagnation in Automotive Safety and Fuel Efficiency* by Princeton-trained engineer, Rob Cirincione, makes the detailed case for raising public expectations and demands upon the auto industry. The backlog of engineering improvements is immense. Automotive suppliers have innovated while the auto makers have obstructed widespread commercial application of their innovations. So too have solid inventors and university-based researchers contributed materially. Important, feasible engineering innovations are ready to diminish serious national transportation problems.

Our government has the authority and the tools to move their applications into the assembly lines and the dealer showrooms. The engineers and scientists inside the auto companies are ready to work at higher levels of significance. There are serious roadway, environmental, economic and global urgencies at stake. We all have a role in confronting the executive mastodons of the auto industry who are stuck in their own traffic. It is time to put the federal cop back on the auto companies' beat. Get rid of the backlog. Put the benefits in the hands of the motorists. And, save the domestic auto companies from their own witless masochism.

Rob Cirincione's report is blowing the whistle to help get the traffic moving again through enlightened public policy, motorist demand and progressive engineering. Over thirty years of stagnation are quite enough. An entire new corps of the top executives is needed to provide a leadership of receptivity to, if not of outright initiation toward a new generation of motor vehicles.

February 2006

Executive Summary

On August 10, 2005, President George W. Bush signed into law the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The Act authorizes federal surface transportation programs for 2005-2009 and includes key safety provisions directing the National Highway Traffic Safety Administration (NHTSA) to study or issue rules pertaining to rollover prevention, occupant ejection, roof strength, side-impact crash protection, tire aging, vehicle backover avoidance, non-traffic incident data collection, and power window switch safety.[1]

Many of the solutions relevant to such safety considerations lie in advanced life-saving technology. Similarly, NHTSA's responsibility to set fuel economy standards is heavily influenced by the industry's technological potential and its technological response to regulation. On August 30, 2005, NHTSA issued a Notice of Proposed Rulemaking (NPRM) that revises the procedures used to determine manufacturers' compliance with corporate average fuel economy (CAFE) standards.[2] The revised CAFE rules propose separating light trucks[3] into size classes.

As NHTSA complies with the SAFETEA-LU Act and considers comments on the reformed CAFE proposal, it is useful to characterize the general behavior of the automotive sector with regard to technological innovation and evaluate the impediments to novel product development and subsequent market diffusion. For the purposes of this report, technological innovation is defined as the first commercially feasible application

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[1] SAFETEA-LU, Public Law 109-59, 2005
[2] Average Fuel Economy Standards for Light Trucks; Model Years 2008-2011, NPRM, NHTSA 2005-22223
[3] Light trucks are pickups, SUVs, and certain minivans.

of a new technical idea. Innovation is distinguished from invention, the first development of a technical idea—and diffusion, the market dissemination of an innovation.

Insofar as innovation can offer benefits to consumers and competitive advantages to producers, conditions that encourage innovation are universally favorable. This report evaluates the automotive industry and the many actors therein, in order to characterize consumer need, technological potential, and the necessary enablers to promote innovative automotive solutions to problems of safety and fuel efficiency.

While this report highlights many promising endeavors, persistent and institutional barriers exist within the automotive industry that delay the arrival of valuable technology. A summary of these obstacles is presented below.

- **The manufacturer-supplier relationship is not conducive to innovation**

  Within the automotive sector, parts suppliers develop innovative technology most readily and frequently (although independent and university inventors make important contributions). Automakers, however, have demonstrated an historical reluctance to incorporate the most advanced designs available, and have generally debuted substantial product improvements only in low-volume niche models. Without the supportive collaboration of vehicle manufacturers, new technology will never arrive in the marketplace, stifling innovation. Suppliers cannot bypass vehicle manufacturers to market directly to consumers, and so without demand or interest from automakers, technology will languish.

  Yet the Detroit automakers have generally preferred cheap parts to innovative parts. The business relationship between domestic motor vehicle manufacturers and their suppliers is dominated by cost demands as opposed to innovative product development. Some automakers have even shared suppliers' innovations with competing parts makers, eroding trust. Many suppliers are now financially unable or strategically unwilling to approach major automakers with innovative technology.

  These effects are compounded by the oligopolistic nature of the automobile industry, which discourages market-disturbing innovation.

- **Government research priorities are misplaced**

  Federally funded research for motor vehicle safety and fuel efficiency is misdirected. Major initiatives in fuel efficiency, like the Partnership for a New Generation of Vehicles and FreedomCAR, overlook near-term solutions, authorize collusion between large automakers, protect the anti-innovative nature of the auto industry, and ignore its most innovative segments. More than $1.5 billion has been spent on these collaborative programs, but no revolutionary advances have been achieved. On the other hand, the 1970's-era Research Safety Vehicle (RSV) program—contracted by NHTSA to small automotive firms—delivered marketable, affordable, production-capable vehicles that achieved revolutionary levels of safety and fuel economy with a modest budget. By 1980, the RSV program contracted to Minicars, Inc. had spent just $36 million (adjusted for inflation) and had constructed 18 prototype vehicles capable of achieving 31 mpg and protecting occupants in 50 mph crashes.[4]

- **NHTSA is not attentive to innovators at the early development stage**

  Without ongoing programs like the RSV, NHTSA does a poor job of monitoring the progress of automotive parts suppliers and independent inventors, who forecast the direction of automotive technology. Although such innovators rely on confidentiality to ensure competitive advantage and patentability, NHTSA has tools (such as the formal information request) that balance the privacy needs of entrepreneurship with the informational needs of a government agency charged with staying abreast of the most technically viable solutions to motor vehicle safety.

  When NHTSA sends information requests to officially gauge technological progress in the industry, however, it concentrates exclusively on large OEMs.[5] NHTSA becomes aware of novel initiatives by smaller actors in automotive technology usually only after the results are commercially apparent or reported in research literature.

- **NHTSA is slow to evaluate the effectiveness of emerging technology**

  Once innovative technology is reported, NHTSA is slow to evaluate its effectiveness. Data collection techniques like statistical sampling through the National Automotive Sampling System (NASS) are not ideally suited to the assessment of emerging safety technology. These samples investigate only a small fraction of motor vehicle crashes, limiting the

[4] *The Safe, Fuel-Efficient Car: a report on its producibility and marketing*, NHTSA, December 1980

[5] Original equipment manufacturer. In the automotive sector (and this report), the term OEM refers to vehicle manufacturers.

chances that the randomly selected crash events will include vehicles equipped with innovative features. Sampling is a suitable tool to detect crash trends over time, but is a poor substitute for evaluating new technology in field trials. A better method for evaluating innovative vehicle technology would involve closely monitoring the on-road performance of experimental fleets.

In addition, statistical and competent analyses of expected safety benefits of new technology (e.g., ejection prevention if laminated glass were to replace tempered glass in side windows) could be applied more extensively by the agency.

- **NHTSA is not prepared to evaluate integrated technology**

Motor vehicle crashes are dynamic events that involve multiple vehicle systems. The most effective response is an integrated and dynamic system as well. Automakers can design safety systems that integrate functions—even connect crashworthiness and crash avoidance—but NHTSA has few tests to evaluate them.

During a rollover, for example, seat belt performance is dependent on vehicle body integrity (seat belt mounts may be forced out of position if the frame deforms). However, NHTSA's roof crush standard—designed to simulate a rollover—only considers the deformation of the roof, and is too weak at that.

Standards that replicate dynamic events will encourage the production of more advanced technology, which the industry is already capable of offering.

- **NHTSA does not act in a technology-forcing capacity**

There is no record of NHTSA ever imposing a safety standard or fuel economy standard which forced manufacturers to develop innovative technology, even though it has the ability to do so. NHTSA's regulations only schedule the deployment of existing technology. By contrast, studies have shown that other federal agencies responsible for setting environmental and safety standards, like the Environmental Protection Agency and Occupational Health and Safety Administration, have sometimes acted in a regulatory capacity that spurred radical industry response.[6]

[6] *Using regulation to change the market for innovation,* Ashford, N., Ayers, C., Stone, R., Harvard Environmental Law Review, Vol. 9, No. 2, 1985

NHTSA has also refused to update obsolete standards, including the seat belt standard and the roof crush standard—which was proposed to be revised 34 years after it was first issued. The agency has studied safety concerns outside the scope of current standards, like pedestrian protection and visibility, but has not acted.

- **Automotive engineers do not practice as professionals**

The automotive engineering community has never established licensure requirements, binding codes of ethics, or protocols of personal accountability that would elevate the practice from an employed vocation to a more independent self-governing profession. In the absence of an expressed duty to safeguard the public welfare (as Profession Engineers, P.E.'s, are sworn), a critical internal stimulus that might spark greater technological advances in safety and fuel efficiency is notably missing from today's automotive engineering circles. The importance of such an advisement derives from the hybrid nature of the job, as science and business exert often conflicting pressures on automotive engineers—who work in both worlds and yet not completely in either.

- **Insurers refuse to offer incentives for safety**

Automobile insurers offered premium discounts for cars purchased with frontal airbags before they were standard, but have not done anything similar since. During the 1990's, insurers actively covered up higher liabilities of SUVs by averaging casualty costs across model lines.

Further, auto insurance policies do not cover the true cost of motor vehicle crashes, hindering the ability of insurance premiums to convey the full damage potential of motor vehicle operation and likewise stimulate the purchase of less dangerous models. While auto insurance payments for liability claims or medical bills are usually capped at $100,000 or $300,000, NHTSA estimates that the economic cost of a severe injury suffered in a motor vehicle crash is more than $1 million. Because auto insurers are not financially responsible for the total damage caused by motor vehicle crashes, insurance premiums only cover limited losses and therefore do not fully reflect driving risks. Accordingly, premium prices and premium price differences between models are not proportional to the relative factor of safety of particular vehicles.

- **Options bundling and pricing reduces demand for safety features**

Vehicle manufacturers often dissuade buyers from choosing life-saving technology by packaging it with other features in expensive bundles. For example, electronic stability control costs manufacturers about $100 to install, but options that include electronic stability control (ESC) can exceed five times that amount. If ESC were standard on all cars, the incremental cost to manufacture would drop even further.

- **Consumers lack information to make the most educated decisions**

  Passenger vehicle technology is more sophisticated than ever. An information asymmetry arises between automotive experts (the automakers and their engineers) and novices (most car buyers) in the marketplace which limits the ability of consumers to make the wisest decisions. Certain safety considerations, like roof crush resistance, are all but hidden from the consumer. When rules like NHTSA's roof crush standard establish a low level of safety, it can be extraordinarily difficult for the buying public to discern higher degrees of protection that certain models may offer.

  Crash tests and consumer information programs, like NHTSA's New Car Assessment Program (NCAP), and independent studies performed by the Insurance Institute for Highway Safety (IIHS) offer important data, but do not evaluate every critical component of vehicle safety. Neither NHTSA nor IIHS perform roof crush resistance tests.

Identifying these innovation impediments and contrasting them to *best practices* is exceptionally urgent, as critical metrics of passenger vehicle performance—including average fleet fuel economy and annual traffic fatalities—remain unchanged or have regressed in recent years. Today, the average fuel economy of the domestic fleet is at a 25-year low, and motor vehicle crashes are the leading cause of death for persons age three to 33. Moreover, NHTSA's ability to attend to these problems creatively and effectively is essential, considering that the agency's chronically underfunded and understaffed existence leaves no room for waste or diversions. With a mere one percent of total Department of Transportation resources, NHTSA cannot afford to stumble.

Nor can the safety agency be swayed by invalid arguments against progressive standards that ignore the true technological potential of modern engineering. Ideological opponents of basic fuel economy standards, for example, continue to level an outdated claim—arrived at by a divided research panel—which asserts that raising fuel economy standards (known as CAFE) encourages the production of passenger vehicles that are less crashworthy. Yet a review of the most recent studies, expert opinions, and congressional testimony on this issue disputes the notion that fuel economy standards have made vehicles less safe and shows that any fuel economy/crashworthiness tradeoff can be easily obviated by means of current technology. In February 2005, for instance, five members of a panel appearing before the House Committee on Science—including a top EPA official under President George H. W. Bush, a representative for the auto industry, and members of the National Academy of Sciences—all agreed that fuel economy standards could be increased without making vehicles less safe. Panel members refuted the notion that setting fuel economy standards ever caused increased traffic fatalities and cited the adoption of technology as one means to lower fuel consumption without sacrificing safety.[7]

Industry arguments against improved safety standards make comparable mistakes and frequently underestimate the creativity of the talented automotive engineering corps. In one glaring example, Ford Motor Company has challenged the need or practicality of strong roof crush standards; even though Volvo (owned by Ford) builds an SUV with a roof strong enough to withstand a rollover without suffering visible deformation. Thus instead of attempting to exceed NHTSA's safety standards to their competitive

[7] "Experts: Technology exists to raise fuel economy of cars and trucks without reducing safety," news release, House Committee on Science, February 9, 2005

advantage, developing solutions that leap vehicle technology beyond these minimum requirements, most major manufacturers fight new proposals and shrink from the opportunity to innovate.

Automakers also push for the lowest common denominator of vehicle safety at the international level, where global safety standards are negotiated in a complicated process called harmonization. Harmonized standards, applicable to vehicle makers around the world, will raise the degree of vehicle safety in developing nations where no standard previously existed, but could very well amount to stagnant and weak rules domestically. The massive inertia of the harmonization proceedings causes longtime safety advocates to worry that the probability of revising newly-harmonized standards in the near term could be almost zero.[8] One exception to the harmonization pitfall is the rare case where NHTSA lags foreign safety standards, as it does with pedestrian safety. A pedestrian safety standard has already been enacted in Europe, and would be extremely beneficial in the US, where 11 percent of all traffic fatalities are pedestrians and no pedestrian standard exists.[9]

Notwithstanding NHTSA's role as a standards-setter, the agency could issue various challenges to industry, entrepreneurs, inventors, and students that seek innovative vehicle solutions to safety and fuel economy problems through a contest format. Agency funding and oversight of such a contest could range from minimal to moderate, be either systems-based or vehicle based, and could build on the research success of other vehicle contests like the Department of Energy's FutureTruck and the Department of Defense's Grand Challenge. Such a contest would complement NHTSA's formal research, augment

[8] "US agrees to door-latch standard," Dee-Ann Durbin, *Associated Press,* November 16, 2004
[9] *Traffic Safety Facts: 2004 Data,* DOT HS 809 911

the agency's knowledge base, and might inspire more engineers to pursue vehicle safety research.

Broadly, the conclusions and recommendations presented here—whether they apply to the withered National Highway Traffic Safety Administration, the inert General Services Administration procurement process, the inflexible domestic auto industry, the unassertive automotive engineers, or various other stakeholders—provide a comprehensive review of proven strategies that could reinvigorate motor vehicle product development and support the commercial production of more sustainable passenger vehicle technology.

Conclusions and Recommendations

1. **Government-funded research in fuel efficiency and vehicle safety should follow successful contracting patterns like the Research Safety Vehicle program and the Small Business Innovation Research program, not billion-dollar boondoggle partnerships with industry.** Promising long-range research from the FreedomCAR program should continue in federal labs, but without industry involvement. NHTSA's overall budget, including research and development, should be doubled.

2. **The General Services Administration should leverage its large procurement program to stimulate the purchase of life-saving and fuel-saving innovations in the automotive sector.** Tracking the on-road performance of fleet vehicles equipped with emerging safety technology and advanced monitoring devices like electronic data recorders will foster better data collection and a swifter evaluation of innovative technology than the current statistical sampling plans that NHTSA employs. The resultant data from these make-shift field trials can be used by NHTSA to evaluate the benefits of particular technologies and their pertinence to ongoing rulemakings.

3. **NHTSA must issue a pedestrian safety standard and a visibility standard, both long overdue and easily written considering auto manufacturer's technological capability in each area.** Obsolete standards which have not been significantly overhauled in years, including those relating to seat belts, must be updated.

4. **The National Highway Traffic Safety Administration must collaborate with small parts suppliers and entrepreneurs.** As NHTSA fulfills its statutory obligations under SAFETEA-LU, it should proactively send parts suppliers and entrepreneurs information requests in order to gain an accurate assessment of the most advanced vehicle safety technologies available, and those technologies which have yet to appear commercially but are under investigation.

5. **NHTSA should add an additional component to its New Car Assessment Program (NCAP) to test and recommend active safety technology like electronic stability control.** Integration of active and passive safety features will provide greater overall vehicle safety.

6. **Trends within the auto insurance industry to adjust premiums by model should continue.** More advanced risk assessment and policy variation must be encouraged, and the viability of insurance plans that cover the complete economic

costs of motor vehicle crashes should be investigated. The auto insurance industry itself should attempt to offer incentives for emerging safety technology.

7. **The Society of Automotive Engineers should adopt a written code of ethics which stresses the interrelation of automotive engineering, ethical decision making, and the public welfare.** This is the first step toward establishing a community of automotive engineers who practice with degrees of independence and professionalism commensurate with their duty.

8. **Harmonization must be monitored closely by safety advocates both substantively and procedurally.** Global technical regulations may raise safety standards in developing nations, but they should never lower safety standards for the domestic fleet.

9. **Fuel economy standards (CAFE) can be raised significantly for both cars and trucks by means of current technology, without safety risks.** CAFE should be raised to 46 mpg for cars and 40 mpg for light trucks by 2014, as has been shown technologically feasible by a 2001 American Council for an Energy-Efficient Economy study.

10. **NHTSA should design a super-efficient and extra-safe vehicle contest, similar in scope to the Department of Energy's FutureTruck or the Department of Defense's Grand Challenge.** In 2005, a privately-funded team successfully won a $10 million prize for piloting a manned flight to the threshold of space. NHTSA should challenge inventors and entrepreneurs to deliver a similarly noteworthy sustainable motor vehicle.

1. Personal and Environmental Consequences of Motor Vehicle Design

Fatalities due to motor vehicle crashes are the leading cause of death in America for ages three through 33.[10] According to the Department of Transportation, 42,636 people died in automobile accidents in 2004.[11] In other words, every year the United States suffers a highway casualty count equal to 365 airplane crashes—or more than fourteen September 11 attacks.

The societal costs of such injury, death and destruction are immense. The Department of Transportation estimated the annual economic cost of motor vehicle crashes at $230 billion in 2000, or $7,300 *per second.*[12] Moreover, these figures do not capture the emotional and psychological toll caused by the death, disability, and duress associated with motor vehicle trauma.

Automotive safety is a national crisis and public health emergency.

Of equal concern is the deplorable fuel economy of the American fleet, which has been dubbed an environmental calamity and national security risk.[13] The United States, given its limited fuel production capacity, is increasingly forced to rely on imported oil to satisfy its energy needs. As a result, American dependence on imported oil has risen

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[10] *Traffic Safety Facts: Research Note*, January 2005, DOT HS 809 831
[11] *Traffic Safety Facts: 2004 Data*, DOT HS 809 911
[12] Ibid
[13] *Ending the Energy Stalemate: A Bipartisan Strategy to Meet America's Energy Challenges*, National Commission on Energy Policy, December 2004. Opening statement for CAFE hearing, Congressman Sherwood Boehlert (R-NY), February 9, 2005, before House Science Committee. *Clean Vehicles, Backgrounder: Energy and Security,* Union of Concerned Scientists, http://www.ucsusa.org/clean_vehicles/cars_and_suvs/page.cfm?pageID=225

from 8% in 1949 to 63% in 2003.[14] One-fifth of our imported petroleum arrives from the Persian Gulf region,[15] heightening the risk of market instability and political tumult.

Motor vehicles are literally driving this demand, accounting for 44% of all domestic petroleum consumption, more than any other machine, process or industry.[16] Every year Americans drive farther and consume more fuel, in no small part because they are driving inefficient vehicles—those that are inherently wasteful fuel users (large and heavy trucks) and those that are engineered for maximum acceleration (high horsepower vehicles). The combined fuel economy of new cars and trucks is hovering at 1981 levels,[17] depressed by engine technology that has improved horsepower over fuel economy, the industry flood of gas guzzling SUV's and their preferential treatment under law, and the woefully inadequate corporate average fuel economy (CAFE) standards—not changed for cars since the 1975 CAFE law was passed.

It is clear that automobiles cannot continue to run on natural gasoline supplies forever. Princeton University Professor Emeritus Kenneth Deffeyes predicted that world oil production would reach a peak sometime before Thanksgiving day, 2005, and would decrease from that point forward.[18] As oil production declines, costs will rise.

Experts who disagree with Deffeyes's conclusion do not offer attractive alternatives, including the extraction of oil from tar sands (a process that relies heavily on natural gas consumption), and the promotion of Fischer-Tropsch type coal to oil

[14] [crude oil imports/crude oil production] US Energy Information Agency, Annual Energy Review 2003. http://www.eia.doe.gov/emeu/aer/petro.html
[15] Energy Information Agency, Annual Energy Review 2003. http://www.eia.doe.gov/emeu/aer/petro.html
[16] U.S. Energy Information Agency, International Petroleum Information, World Oil Demand 2000-2004, http://www.eia.doe.gov/emeu/international/petroleu.html
[17] *Light Duty Automotive Technology and Fuel Economy Trends: 1975 Through 2005*, EPA, Office of Transportation and Air Quality
[18] "It's the end of oil," Kenneth Deffeyes, *Time*, October 31, 2005

conversion,[19] which requires huge primary energy inputs and yields higher carbon emissions than conventional petroleum use.[20] Neither prospect is appealing.

In addition to concerns of consumption and dependence, the fuel economy of cars and trucks is related to global warming because greenhouse gases (GHG) are a byproduct of fossil fuel combustion. The internal combustion engine simply burns fuel with air and expels the resulting gas. For every gallon (weighing 5.9 pounds) of gasoline burned in a combustion engine, approximately 5.3 pounds of carbon in the gasoline combine with 14.2 pounds of oxygen in the air to form 19.5 lbs of carbon dioxide gas released through the tailpipe.[21] Carbon dioxide lingers in the upper atmosphere, where, along with water vapor and similar gases, it absorbs infrared radiation given off by the earth's surface. The carbon dioxide in turn re-radiates this energy in all directions, including back down to the lower atmosphere and the earth's surface. This results in the greenhouse effect, which has existed naturally on Earth and is necessary to sustain life. However, the release of *man-made* greenhouse gasses (like carbon dioxide) increases the concentration of GHGs in the atmosphere, amplifying the greenhouse effect and accelerating global warming.[22]

According to the EPA, fossil fuel combustion, like that from an internal combustion engine, accounts for approximately 80% of all greenhouse gas emissions in

[19] "Oil is here to stay," Peter Huber, *Time*, October 31, 2005

[20] *Life-Cycle Greenhouse-Gas Emissions Inventory For Fischer-Tropsch Fuels*, Marano, J., Ciferno, J., US Department of Energy National Energy Technology Laboratory, 2001

[21] Gasoline is comprised of many compounds, but primarily contains various forms of carbon. Other elements, like sulfur, combine with oxygen in air to form smog-causing pollutants.

[22] Global warming – climate, EPA, http://yosemite.epa.gov/oar/globalwarming.nsf/content/climate.html

the US.[23] Though the exact magnitude and consequences of the global warming process are in dispute, its existence, causes and potential dangers are irrefutable.

In sum, the inefficiencies of motor vehicles sold in the US portend undesirable political, economic and ecological outcomes of the most serious order and elevate the problem to a front rank national priority. Considered in tandem with the epidemic of motor vehicle injuries and fatalities, solutions to mitigate direct and indirect effects of automobile design are paramount.

[23] *The US greenhouse gas inventory*, EPA, 2005

2. Sustainable Passenger Vehicle Design and Innovative Potential

The quality of a passenger vehicle design can be evaluated by parameters of performance, reliability, efficiency, economy and safety. Environmental consequences of manufacturing[24] and operating the vehicle should also be considered.

Personal injuries and environmental degradation are indicative of particular failures in the road-vehicle-driver transportation system. Successful passenger vehicle and road system design therefore minimizes adverse effects on safety and the environment and maximizes efficiency, reliability and economy. A judicious application of engineering ingenuity presents the best solution currently practical. While the costs of technological progress can never be eradicated, the trajectory of industry can be aligned in a way that values sustainability and social responsibility.

With every creative advance in science and technology, the opportunity for an innovative solution to problems of auto safety and fuel efficiency arises. Profiling the existence and adoption of innovations related to safety and efficiency provides a fairly easy measure of the automotive industry's drive to achieve a sustainable solution. This report evaluates stakeholders within the auto industry and considers their contribution to the promotion and advancement of innovations in key areas of safety and efficiency.

[24] The Minnesota office of Environmental Assistance has reported on the sustainability of automotive manufacturing in its study *Product Stewardship Opportunities within the Automotive Industry*, August 2003

3. Responsibility, Ethics, and the Engineers' Role

Unlike dentists, hairdressers, and plumbers, automotive engineers are not personally responsible for their work product. Neither professional licensure nor enforceable standards of practice bind the automakers' engineering ranks. Even the relevant professional association, the Society of Automotive Engineers (SAE), lacks a code of ethics.

The absence of an ethical code distinguishes SAE among professional societies, which advocate ethical practice as a coordinated convention that encourages cooperation and good conduct among the membership.[25] Professional societies thus recognize best practices and issue codes of ethics. Yet the SAE abstains from ethical discourse, reflecting the automotive engineer's function as only quasi-professional. In practice, an engineer is a skilled specialist and a company employee, dual roles that confuse the formulation of ethical guidelines. Engineers who are responsible to their profession and their employer face competing pressures, described by University of Minnesota Mechanical Engineering Professor Edwin Layton in his seminal work *The Revolt of the Engineers*. "Engineering is a scientific profession," writes Layton, "yet the test of the engineer's work lies not in the laboratory, but in the marketplace. The claims of science and business have pulled the engineer, at times, in opposing directions."[26]

These antagonistic tendencies cleave a patchwork of professional engineering standards and spark ethical debates within individual engineering communities. For instance, though the SAE has no code of ethics, the American Society of Civil Engineers

[25] *Thinking like an engineer: the place of a code of ethics in the practice of a profession*, Davis, M., Center for the Study of Ethics in the Professions, Illinois Institute of Technology, 1991
[26] *The Revolt of the Engineers*, Edwin Layton, Johns Hopkins University Press, 1971, p. 1

(ASCE), the American Society of Mechanical Engineers (ASME), and the Institute of Electrical and Electronics Engineers (IEEE) all have professional ethical codes. But Joseph Herkert, Professor of Science, Technology, and Society at North Carolina State University, observes that discipline-based professional societies, even those with codes of ethics, have "in recent years for the most part only been giving lip service to the importance of engineering ethics."[27] Herkert notes that ASCE adopted a "limited notion" of sustainability in its newest code, ASME incorporated environmental protection in its code after "months of stonewalling," and IEEE suspended an ethics hotline after less than one year of operation.[28]

The forces that resist a broader involvement in engineering ethics typically represent the commercial side of engineering, where "engineers who hope to advance in the corporate hierarchy are expected to embrace business values."[29] The tension between engineering and business, says Herkert, "is exacerbated when the career paths of engineers lead to management positions."[30] Layton views the conventional career ladder of technical firms in even more destructive terms. "Insofar as business treats engineering merely as a stepping stone to management, it represents a denial of much that professions stand for."[31]

Historically, the conservative technological tradition of automotive engineering befitted the rigidly hierarchical corporate structure of automobile manufacturers and

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[27] *ABET's engineering criteria 2000 and engineering ethics: where do we go from here?*, Herkert, J., presented at the OEC International Conference on Ethics in Engineering and Computer Science, March 1999
[28] Ibid
[29] *Microethics, macroethics, and professional engineering societies*, Herkert, J., Emerging Technologies and Ethical Issues in Engineering: Papers from a Workshop, October 14-15, 2003, National Academy of Sciences, 2004
[30] Ibid
[31] *The Revolt of the Engineers*, Edwin Layton, Johns Hopkins University Press, 1971, p. 9

spawned an industrial culture more favorable to business concerns than autonomous professionalism. Compared to the burgeoning radio and electronics industry at the turn of the century, automotive engineering was characterized by a "weaker contact with science and less esoteric knowledge."[32] Pioneering captains of the auto industry were "practical men like Ford and Kettering," rather than "scientists like Steinmetz and Pupin."[33] As such, the nascent atmosphere of the auto industry did not engender a body of self-aware and self-governing technologists. The Society of Automotive Engineers resolved early on that engineering qualifications would exclude some managers from membership in the society and were therefore unnecessary, a decision that converted the organization "into something approaching a trade association."[34]

The SAE has continued to function as a trade organization and has unceasingly resisted the adoption of a code of ethics. No external pressures have ever forced automakers to adopt professional standards or set employment criteria. To this day, it isn't even necessary to have earned an engineering degree to work as an automotive engineer.

By contrast, strict guidelines and methods of accountability govern the engineering of buildings, structures, and public works. Engineers who submit construction plans to public authorities must be certified Professional Engineers (P.E.), and all structural and mechanical plans for a project must bear a P.E.'s seal. The National Council of Examiners for Engineering and Surveying (NCEES) oversees the state boards that license Professional Engineers and declares in its Model Rules that "licensees, in the performance of their services for clients, employers, and customers,

[32] Ibid, p. 42
[33] Ibid
[34] Ibid

shall be cognizant that their first and foremost responsibility is to the public welfare."[35] Engineers who are found to violate this dictum can be stripped of their professional license.

Whether the automotive industry would benefit from the enactment of P.E.-like requirements, or from the adoption of a professional code of ethics, or even from a greater emphasis on engineering ethics in education, is only a question of identifying effective strategies—there is no doubt that an injection of ethics would be valuable. The responsibilities of automotive engineers beg for an ethical imperative and a professional convention similar to the practice of sister disciplines, like civil engineering. The public welfare is equally dependent on the performance of bridges and roads as the vehicles that travel them.

In 1966, the same year that landmark motor vehicle safety legislation was enacted by Congress, Ralph Nader delivered an address to the Middle Atlantic Section meeting of the American Society for Engineering Education, exhorting the engineering profession to apply its talents toward the remediation of technology's costs—a pursuit that he noted can be "as impressive as the engineering achievement that developed the technology." In closing, Nader remarked to the society that, "It is the recognition of this gap between promise and performance that is producing the pressures which continue to mount on the engineering profession and demand that it assert itself toward its most magnificent aspirations—for so much of our future is in your trust." These comments echo the public's demand for safe and efficient motor vehicle engineering that has continued unabated ever since Nader revealed the issues to popular scrutiny.

[35] Model Rules, National Council of Examiners for Engineering and Surveying, 240.15(A)(1), August 2005

Today, such themes are highly marketable. In a recent advertising campaign, Bill Ford Jr., Chairman and Chief Executive Officer of Ford Motor Company, announced that Ford is committing itself to innovation by highlighting Ford's plan to increase production of hybrid vehicles and work closely on safety with its Volvo division.[36] The efficiency and safety initiative is a clever advertising tack, instilling in consumers a notion of socially responsible engineering by Ford Motor Company. It might even imply a commitment to some measure of engineering ethics from the leader of the third-largest automaker, a non-engineer who earned degrees in history and business.

[36] "Innovation is our mission," www.ford.com/en/innovation

4. Innovation and the Manufacturer-Supplier Relationship

While the global vehicle market is more diversified than ever, major automakers prefer incremental improvements and cost savings to radical technological change, retarding the pace of innovation. Some analysts have suggested that the international debut of hybrid electric vehicles in 1995 was the most revolutionary automotive innovation since the automatic transmission, featured in a 1940 Oldsmobile.

Small upstarts and agile competitors introduce novel products or innovative technology when giant corporations are rigid—but this effect is less noticeable in the automotive sector. High barriers to entry limit the number of automobile manufacturers and constrict the flow of innovation from small suppliers (where many new technologies are developed) to finished vehicles. Vehicle manufacturers, not consumers, exercise initial demand for new products by contracting parts development with component suppliers. Automakers have exploited this position in recent decades to obtain lower prices from suppliers, either by directly requesting cost concessions or by exposing suppliers' proprietary technology to competing parts makers, thereby reducing the premium suppliers can command for innovative designs they develop ahead of others. While suppliers can leverage both cost savings and product innovations to increase the appeal of their business, major automakers overwhelmingly focus only on the price-lowering abilities of their supplier base, at times undermining the collaborative relationship that promotes innovation in the first place.

John De Lorean's memoir *On a Clear Day You Can See General Motors* recounts several of the abusive tactics General Motors perpetrated in its dealings with suppliers during the 1970's. De Lorean, an engineering executive with Chevrolet and Pontiac, paints an image of a strong-arm giant with a penchant for underhanded tactics and a congenital disrespect for independent suppliers. One representative anecdote relates the saga of the Holly Carburetor Company, which learned Chevrolet was having trouble designing carburetors for the new subcompact Vega. During Vega development, Chevrolet had discovered that their carburetors would not satisfy emission requirements and were therefore planning to add a $25 air pump to every engine in order to burn exhaust gases.[37] In response, Holly Carburetor Company designed an innovative carburetor that met emissions requirements without the pump, saving GM $3 million.[38] Holly did not patent the design, however, because of a gentlemen's agreement common within the industry—in return for the new design Holly would receive business supplying these carburetors to GM for the Vega.[39]

After GM's Rochester Products Division found out, however, it got "panicky" that it might lose all Vega work.[40] What did GM do? They appropriated Holly's design and gave it RPD.[41] De Lorean wrote a memo to his superior, conveying his profound disappointment. "In my opinion, this decision was shortsighted and is one of the main reasons that General Motors has not led in a significant technical innovation since the automatic transmission. ... To my mind, a supplier who makes a significant contribution earns some business—to use our suppliers otherwise is immoral."[42]

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[37] *On a Clear Day You Can See General Motors: John Z. De Lorean's Look Inside the Automotive Giant,* J. Patrick Wright, Avon Books, 1979, p. 78
[38] Ibid
[39] Ibid
[40] Ibid, p. 79
[41] Ibid
[42] Ibid

In the end, De Lorean fought for and won Holly Carburetor Company a share of the Vega business (manufacturing the very carburetor they designed) but the culture that endorsed such behavior remained intact. Suppliers are treated no more fairly today. "It's shameless what some manufacturers want to force on suppliers via terms and conditions," says Wolfgang Vogel of ZF Friedrichshafen AG, maker of drivetrain and chassis technology.[43] A profile of modern reverse-engineering operations at GM featured in *Wired* magazine shows the automaker to be applying the surveillance technique to purchasing negotiations as earnestly as product research, with surgical precision. Once a competitor's vehicle is completely disassembled, says staff project engineer Craig Duncan, "we know the mass of the part, what the labor rate is, and what the shipping costs are, and we start adding up all the puzzle pieces. It's a scientific way of being much more aggressive with our suppliers to push the costs down."[44] Major automakers have so focused the supplier relationship on cost reduction over product improvement that industry analyst Eric Wallbank reports some suppliers have altogether stopped approaching manufacturers with innovations.[45]

Vehicle manufacturers and parts suppliers have endured a strained relationship from the start. When Henry Ford began mass-producing vehicles, he sold a stake of Ford Motor Company to Horace and John Dodge, who agreed to manufacture axle, transmission and engine components at their Detroit machine shop.[46] Friction soon developed between the ambitious Dodge suppliers who demanded higher dividends and

[43] "Suppliers skeptical of Ford, VW plans," Bradford Wernle and Tony Lewin, *Automotive News*, December 19, 2005
[44] "The teardown artists," Carl Hoffman, *Wired*, February 2006
[45] "Suppliers skeptical of Ford, VW plans," Bradford Wernle and Tony Lewin, *Automotive News*, December 19, 2005
[46] "Make or buy parts? The strategy has shifted," Dale Jewett, *Automotive News*, June 16, 2003

Henry Ford who sought greater manufacturing control.[47] Ford's solution to his supply-chain imbroglio was the Rouge manufacturing complex, a sprawling 2,000 acre compound that could produce entire vehicles, sans suppliers.[48] The Rouge plant epitomized Henry Ford's concept of vertical integration and though he continued to rely on suppliers, he significantly undercut their ability to leverage component delivery for price control.

Ford and GM, which undertook a similarly large engineering operation, became gigantic companies by the 1950's, able to design—and build—an entire car. Rather than apply the aggregate talent of so many in-house engineers, though, the auto industry slogged through technological doldrums during the 50s, and 60s, ignoring advances in safety and efficiency for style and marketing ploys.

While GM and Ford's product offerings languished amidst the enormous bureaucracy, automotive suppliers established themselves as "focused and nimble and expert at creating innovative products," according to a history of the OEM-supplier relationship profiled by *Automotive News*.[49]

By the 1990s, GM and Ford acquiesced to the separation theory and spun off their supplier divisions. Ford still maintains a flexible manufacturing plant at Rouge, though the production method is an adaptation of Japanese manufacturing techniques and a tight supply chain, not Henry Ford's vertical integration.[50]

Yet the separation of GM and Ford's supplier divisions (known as Delphi and Visteon) did not foster innovation or profitability by itself. In fact, Delphi was driven to

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[47] Ibid
[48] Ibid
[49] "Make or buy parts? The strategy has shifted," Dale Jewett, *Automotive News*, June 16, 2003
[50] "Manufacturing: Rouge reborn," Richard Truett, *Automotive News*, June 16, 2003

bankruptcy in 2005, one of thirteen major auto suppliers to file for Chapter 11 protection in that year.[51] It is not as important for a supplier to be officially independent as it is for the supplier to be able to operate within a product development cycle that values research, dynamism, communication, and collaboration along the supply chain. The judges of the *Automotive News* PACE Awards for Innovation observe that, "Innovation is a critical ingredient in competitive success, but like success or profits, [it] is a consequence of contextual conditions and mastery of larger business processes."[52] Contextual conditions and large business processes beneficial to innovation begin with the major automakers, who dominate the automobile industry.

The anti-innovative automotive sector

A predilection for innovation runs counter to the natural behavior of the automotive sector, however, because of the major automakers' incentives to follow a conservative technological course. While domestic automakers have seen their market share erode in recent decades, three manufacturers (General Motors, Ford Motor Company, and Daimler-Chrysler) still account for 60 percent of car and light truck sales in the US.[53] A relatively large portion of the new vehicle market encourages these large firms (especially GM and Ford) to rely on their financing arms for significant revenue. Every year that GM and Ford sell millions of cars and trucks, they generate millions of potential customers for their lending operations, General Motors Acceptance Corporation (GMAC) and Ford Motor Credit Company (Ford Credit). Further, these financing

[51] Presentation of William G. Diehl, Principal, COO & Automotive Group Lead, BBK Ltd., Automotive News World Congress, Jan. 17, 2006
[52] "PACE: What we've learned so far," *Automotive News*, 2005
[53] U.S. light-vehicle sales by nameplate, December & 12 months 2005, *Automotive News*, January 9, 2006

operations have grown so expansive[54] and remained so decently profitable, that their success distracts from the failures of core automotive divisions. In the third quarter of 2005, for example, Ford suffered a staggering $1.3 billion pre-tax loss in its automotive business but enjoyed a $1.1 billion pre-tax profit in its financial services sector.[55] General Motors has tolerated a similar balance sheet for years. If the income from their financing divisions were ignored, a spotlight on Ford and GM's faltering automotive divisions would shine brighter—and motivate the companies to aggressively pursue product improvements and technological advantages.

Yet rather than compete with innovations in safety and efficiency to win back customers in the American marketplace, General Motors and Ford are turning their sights toward China. "We're very bullish," said Kevin Wale, president of GM China group, at an industry conference in Fall 2005.[56] In China, automakers eye the fastest growing and second-largest overall passenger vehicle market (after the US). According to the Associated Press, China car sales grew 27 percent from 2004 to 2005, to 3.2 million units.[57] For comparison, eight million cars were sold in the US in 2005, but this represented a meager 3 percent increase from 2004.[58] This burgeoning Asian marketplace is diverse, with over a dozen automakers selling vehicles in China, and is dominated by General Motors[59]—though Ford is rapidly increasing sales and share.[60]

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[54] GMAC offers fixed rate investment notes, money market accounts, CD's, private education loans, home mortgages, home equity loans, real estate brokerage, homeowners insurance, RV insurance, motorcycle insurance, automobile insurance, and automobile loans. Ford Credit offers numerous investment opportunities, loans, financing, disability insurance, life insurance, and automobile insurance.
[55] Ford reports third quarter 2005 financial results, press release, Ford Motor Company, October 20, 2005
[56] "Auto exes optimistic about China market outlook," *Automotive News*, October 18, 2005
[57] "China car sales jump 27 percent in 2005," *Associated Press*, January 11, 2006
[58] US car and light truck sales, *Automotive News*, January 9, 2006
[59] "GM tops VW for China sales lead," *Automotive News*, August 15, 2005
[60] "Ford Motor sees record 2005 China vehicle sales," *Reuters*, January 16, 2006

Beleaguered automakers like GM and Ford are attracted to the young market in China by its wide profit margins and tremendous potential for expansion. In July 2005, Wale confirmed that, "China continues to be a very solid profit contributor" for GM, as the company made $417 million in China during the previous year.[61] Like SUV's of the 1990's; passenger vehicles sold today in China present a fairly easy and large profit for manufacturers. The Chinese government is only just starting to consider the benefits of US-style vehicle assessment programs, and so the near-term pressure on automakers selling in China to advance life-saving and fuel-saving innovations is markedly weak.

Even before major manufacturers unveil new models to customers, many squander the most innovative segments of the development cycle. Suppliers, for example, are withstanding an aggressive pursuit from automakers almost exclusively directed at lowering component prices and not toward product improvements. According to the Jan 9, 2006 *Automotive News*, consultant Ronald Berger and research firm SupplierBusiness.com surveyed 100 supplier executives and found that

- 70% predicted chapter 11 filings by Tier 1 suppliers will increase
- 43% expect relations with OEMs to get worse
- Executives fear their companies will not be compensated adequately for research and development
- Suppliers see price pressure from OEMs as the biggest challenge

[61] "GM sees record car sales in China," *BBC News*, July 6, 2005

- Suppliers are worried that the restructuring of the business brought about by globalization will force Tier 1 and Tier 2 sourcing to India, China, and eastern Europe[62]

These findings indicate that for the most part, automakers view parts suppliers in a narrow cost-cutting context and resist tapping their innovative potential. This attitude creates an environment adverse to innovative product development throughout the automotive design cycle.

Other factors that inhibit the innovation function stem simply from the market behavior of the automotive sector, in which the dominant firms are prone to interdependent decision making,[63] and high barriers (technical complexity, research and development costs) limit the entrance of new producers. Thus the established manufacturers vie for slivers of a mature market (or they engage an emerging market as in China) and the net effect is a focus on near-term profitability instead of revolutionary change. In 1978, MIT's Center for Policy Alternatives characterized a similar situation in its report *Government Involvement in the Innovation Process*, which stated that, "large oligopolistic firms may concentrate their resources on short-term improvements rather than on risky and market-disturbing long-term innovations. Individual consumers face a

[62] "Out with the old year, in with...the same old stuff," *Automotive News,* January 9, 2006
[63] In 1968, the Justice Department accused the Big Three of a conspiratorial effort to "eliminate all competition among themselves in the research, development, manufacture, and installation of motor vehicle air pollution control equipment." The auto companies agreed not to do so in a consent decree. Today, product and price decisions among GM, Ford, and the Chrylser group are routinely parried and matched by one another. When one offers incentives, the others follow. When one designs a muscle car, the others do so as well.

similar problem in that they often lack the information to make wise purchases or the market power to be effective bargainers."[64]

Such market concentration and information asymmetry within the automotive sector has yielded a host of stagnant vehicle designs that are inefficient and dangerous—and frequently contrary to consumer demand. In 2004, 91% of respondents to a Lou Harris poll indicated that they would spend \$200-\$300 more for safety improvements to new cars, and 83% said that they were in favor of major upgrades to roof safety standards.[65] It follows that many new car buyers might be surprised to learn that their vehicle's roof structure is approximately as strong as the roof on a 1971 model because many automakers have done little to improve the roof crush resistance of cars and trucks in the thirty years since the first standard was issued.

Furthermore, the mechanism by which manufacturers gauge consumer interest in the innovations they choose to market (placing most on the optional list of accessories) is not only inherently flawed, in the case of safety innovations it is patently wrong because it often forces the buyer to choose between safety and economy. Ralph Nader noted in 1965 that "the industry has not recognized the immorality of selling style as part of the basic cost of cars while requiring the buyer to pay extra for safety."[66]

Yet technological innovation, including that related to auto safety, is by definition without real-world success and is therefore difficult to associate with accurate performance data. Modeling and testing only approximate on-road interactions. With

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[64] *Government involvement in the innovation process: a contractor's report to the Office of Technology Assessment*, Center for Policy Alternatives, MIT, 1978, p. 14

[65] "As traffic fatalities hit 13-year high, new Lou Harris poll shows near unanimous public support for government action to improve vehicle safety standards to stem rising tides of death," Advocates for Highway and Auto Safety, July 12, 2004, http://www.saferoads.org/press/press2004/pr_HarrisPoll7-12-04.htm

[66] *Unsafe at Any Speed*, Ralph Nader, Grossman Publishers, 1965, p. 159

only performance estimates, manufacturers, consumers, and regulators cannot precisely evaluate the effectiveness of new technology. So observers may wait years until the precise effectiveness of safety innovations, first appearing in luxury or upmarket models, is corroborated by the crash records of these chosen vehicles. Effective and practical safety technology, years after being introduced to the market, might now become standard equipment by means of law, regulation, or common agreement.

The viability and efficacy of fuel-saving innovations are less dependent on real-world observations, with results more accurately predictable than safety technology, but a similar problem of consumer awareness persists. The average consumer is not knowledgeable enough to interpret mileage ratings relative to measurement inaccuracies, automakers' technological potential, or producers' marginal manufacturing costs, and so he is ill-equipped to judge fuel economy improvements. Prudent car buyers know which models get better gas mileage than others, and gasoline price spikes may shift consumer preference to less fuel-consuming vehicles, but it is doubtful that the typical consumer can evaluate absolute mileage ratings and the underlying engineering. Without such a critical analysis, consumers cannot gauge the automakers' effort and ability to produce highly efficient and economical vehicles. Most car buyers have no way of knowing how easy or difficult it might be for manufacturers to design vehicles that achieve 10 percent or 100 percent better fuel economy, or what those increases might cost. The tradeoff between horsepower and fuel economy is also only partly understood by consumers.

In the gulf of knowledge between what consumers can be reasonably expected to understand about passenger vehicle design and what the auto industry actually builds lies the National Highway Traffic Safety Administration, tasked with ensuring the safety and fuel economy of cars and trucks sold in the US.

5. The Federal Regulator

If the industry is somewhat rigid, then NHTSA is ossified. Even the agency's own engineers admit to a lack of speed and effectiveness. Dr. Joseph Kanianthra, the Associate Administrator of Vehicle Safety Research at NHTSA, says that, "in my own personal opinion we are a bit slow on the issue, and we must move ahead if we are going to commit to safety."[67]

Kanianthra's comments echo NHTSA's performance on such key safety provisions as airbags, tire pressure monitoring, and roof crush resistance, all of which have required the intervention of lawsuits or acts of Congress to seriously advance. The agency's sluggish pace can in part be traced to anemic budgets and the inability to act independently of the White House's deregulation ideology in implementing its federal statutes. NHTSA ineptitude is not, however, due to a lack of authority. In specific regard to technology and innovation, a U.S. Court of Appeals ruled that NHTSA is "empowered to issue safety standards which require improvements in existing technology or which require the development of new technology, and it is not limited to issuing standards based solely on devices already fully developed."[68]

It is useful, therefore, to analyze the degree to which NHSTA has successfully acted in a technology-forcing capacity, or a promoter of auto safety and efficiency innovation. In so doing, the governmental response to technological innovation can be characterized and opportunities for improving the industry-regulatory interaction to

[67] "Automakers urged to address car-SUV crashes," Jeff Plungis, Detroit News, April 14, 2005
[68] *Chrysler Corp. v. Dept. of Trans.*, 472 F.2d 659, 673 (6th Cir. 1972).

promote greater and swifter advances in automotive safety and efficiency can be identified.

Four Federal Motor Vehicle Safety Standards

FMVSS 208 — Occupant Crash Protection

Safety standard 208 has been the subject of perhaps the most attention and contention of any motor vehicle standard, having been proposed, amended, revoked, re-enacted, and argued all the way to the Supreme Court.

In its first incarnation (1967), standard 208 simply required the installation of seat belts in passenger vehicles sold in the US. Due to low belt usage rates, however, the standard was revised in 1971 to require the use of passive restraints that would provide crash protection in the absence of any action by vehicle occupants. Two types of passive restraints: airbags and automatic seat belts, satisfied the early passive restraint rules.

The threat of an airbag requirement provoked a hostile reaction from industry[69] and for the next 20 years standard 208 treaded in a political and regulatory quagmire. In 1984, Ford Motor Company settled a lawsuit after an 18-year-old crash victim alleged that Ford should have installed an airbag in her Pinto. The victim was rendered quadriplegic in a frontal collision and Ford agreed to pay $1.8 million.[70] Publicity from

[69] See transcript from audio tapes of a White House meeting between Henry Ford II, Lee Iacocca, John Ehrlichman and President Nixon, April 27, 1971, National Archives; audio tapes of a telephone call between John Ehrlichman and Secretary of Transportation John Volpe, April 30, 1971, National Archives; *Motor Vehicle Manufacturers Association v. State Farm Mutual*, 463 U.S. 29 (1983)

[70] *Lifesavers: CJ & D's guide to lawsuits that protect us all*, Mulligan, M., Gottlieb, E., Center for Justice and Democracy, 2002, http://www.centerjd.org/free/Lifesavers.pdf

the case and others like it helped force Ford to begin offering airbags as optional equipment on some models.[71]

Ultimately, Congress included a passive safety provision in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), ordering NHTSA to issue a rule requiring mandatory installation of airbags no later than 1993. By this legislation NHTSA was to require the installation of driver and passenger airbags in 95% of each manufacturer's passenger cars no later than September 1, 1996. Full compliance would be required in the following model year. Slower implementation timetables were issued for light trucks.

As a result of the delay to incorporate an airbag requirement into FMVSS 208, by the time NHTSA issued its final rule in 1994, airbag technology had been studied for 40 years. The first patent for an inflatable "safety cushion" was granted by the United States Patent Office in 1953 to John Hetrick of Newport, Rhode Island.[72] The automotive industry experimented with engineering problems of bag structure and means of inflation throughout the 50s and 60s, mostly in secret.[73] A NASA contract to the Martin Company and Carl Clark in 1964 provided the first public research demonstration of the potential safety benefit of airbag restraints.[74] In the 1970s, GM debuted the first commercial application of the airbag, offering it as an option in some 1974 Buicks, Oldsmobiles and Cadillacs, following a production run of 1,000 prototypes in 1973 Chevrolets.[75]

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[71] Ibid
[72] "GM's airbag concept inflated slowly," Auto News, August 2, 2004
[73] *Unsafe at any speed,* Nader, R. Grossman Publishers, 1965; Life Magazine article 1964
[74] Discussion with Carl Clark, January 16, 2006
[75] "GM to offer bags on some '74s," *Automotive News*, February 19, 1973

So the 1994 NHTSA revision of FMVSS 208 was a diffusive rule (not an innovative one), mandating the use of technology which first appeared—albeit as an option—in the commercial market 21 years earlier.

2000 FMVSS 208 Revision — Advanced Airbags

Following the occurrence of heavily publicized injuries to children and small-stature persons caused by early airbag technology, NHTSA again revised FMVSS 208 in 2000 to include requirements for so-called "advanced airbags." As before, NHTSA began the rulemaking process but its slow pace inspired Congress to pass a statutory impetus in 1998 directing a specific timetable for the agency to rewrite FMVSS 208, "to improve occupant protection for occupants of different sizes, belted and unbelted...while minimizing the risk to infants, children, and other occupants from injuries and deaths caused by air bags, by means that include advanced air bags."[76] NHTSA issued its final advanced airbag rule on May 12 2000.[77]

Rather than actually promoting advanced airbag technology, the final form of the 208 revision required only elementary changes to the conventional airbag control system. Additionally, while the 2000 FMVSS revision broadened the class of protected occupants and crash events it actually *lowered* the test vehicle speed for the most severe configuration. (The test speed for a crash into a rigid barrier with an unbelted median-sized male dummy was lowered 5 mph from 30 mph to 25 mph after the agency sided with manufacturers' arguments that lowering the test speed would allow automakers to

[76] Public Law 105-178, title VII, § 7103(a), 112 Stat. 465-66 (1998)
[77] 65 Federal Register p. 30680, May 12, 2000; NHTSA 00-7031

reduce airbag-injury risks without sacrificing severe crash protection.)[78] The 2000 FMVSS 208 standard revision did not, in fact, promote advanced airbags, it mandated *depowered* airbags that only inflate when a heavy object (similar in weight to a teenager or adult) occupies the seat.

A summary of the tests required by the airbag standard is presented in table 1.

Table 1. Protected Crash Event Configurations	
Pre-2000 FMVSS 208	*2000 FMVSS 208 Revision – Advanced Airbags*
Unbelted 50th percentile male dummies in 30 mph barrier or sled test simulation*	Unbelted 50th percentile male and 5th percentile female dummies in 25 mph rigid barrier
Belted 50th percentile male and 5th percentile female dummies in 30 mph rigid barrier	Belted 50th percentile male and 5th percentile female dummies in 30 mph rigid barrier
	Belted 5th percentile female in 25 mph offset deformable barrier
	1, 3, 6 yr-old child dummy in static airbag inflation test

FMVSS Standard 208 pre and post-2000
*NHTSA allowed manufacturers to use a decelerating sled test in the interim period between the beginning of the rulemaking and its completion as a temporary means of certifying depowered airbags, a quick fix for the problem of airbag induced injury according to the agency. Sled tests slow the vehicle quickly but do not crash it.

The advanced airbag revision did not require improved crash protection for severe crashes or sophisticated countermeasures to minimize airbag-induced injury, for interrelated reasons. First, the standard reduced the maximum crash test energy by 30 percent, eroding the upper bound of occupant protection for all persons. Second, because the most aggressive airbag deployments (high speed crashes with unbelted median-sized adult males) can be depowered to meet this new standard, the requirement that small females (5th percentile) be protected and uninjured in the same crash configuration is less stringent. Third, because NHTSA itself found that existing vehicles could meet the proposed low risk static deployment tests with "the addition of a weight sensor," the

[78] Advanced Airbag Final Rule, NHTSA Docket 00-7031, p. 65

standard does not in fact require the installation of advanced airbag technology, only basic modifications.[79]

A truly advanced airbag standard would require manufacturers to equip vehicles with airbag systems that can detect occupant size, occupant position, crash severity, and dynamically alter the inflation characteristics of the restraint according to such variables. A range of bag inflation and energy absorption profiles would be possible from such a system. The airbag system would protect—and not injure—children, small stature females, adult males, and out of position occupants in low speed and high speed crashes.

Even some of the earliest commercial airbag designs were manufactured to more advanced performance standards than is required by the 2000 advanced airbag rule. In fact the very first mass-produced airbags, made by General Motors from 1973-1976, featured dual level deployment systems that inflated less aggressively in low speed collisions. Harold Mertz, senior GM engineer, discussed the automaker's early airbag systems at a public hearing on airbag-induced injury and stated that, "it just makes logical sense to deploy in proportion to the crash severity."[80] In 1988, Mercedes-Benz started selling vehicles engineered with dual thresholds, setting different levels for airbag deployment based on collision speed. These dual threshold airbags inflated in 12 mph collisions for unbelted occupants but not until 18 mph for belted occupants.[81] By the time NHTSA began considering the advanced airbag standard, in the late 1990's, other technologies to improve airbag performance—like radar pre-crash sensing and occupant

[79] *Final economic assessment: FMVSS No. 208 Advanced Air Bags*, Office of Regulatory Analysis & Evaluation, NHTSA, May 2000, section E-3
[80] Report of Proceedings, Public Forum on Air Bags and Child Passenger Safety, National Transportation Safety Board, March 1997, p. 196
[81] Ibid, p. 275

size detection—had been known to the agency and to the industry for some time.[82] In fact, the Minicars Research Safety Vehicle (RSV), contracted by NHTSA in 1975, employed a radar-based object detection system very similar to pre-crash sensors that major automakers would begin publicly investigating decades later.[83] That the FMVSS 208 revision did not require the implementation of these technologies—or even the dual stage, dual threshold features that were available in much earlier vehicles, is certain proof that the advanced airbag standard did not meet its statutory mandate.

On December 17, 1997, while NHTSA was still finalizing the 208 rule revision, the agency sent an information request to major automakers to investigate their progress on the underlying technology necessary for advanced airbag systems. Table 2 presents a summary of the replies to the information request, in which each automaker indicated their progress on specific technology. As the table summarizes, a number of these devices were not available before the 1998 model year. Also note that weight/pattern recognition, though reported to be deployed in MY 2000, was actually first available commercially in MY 2001 vehicles.[84]

Judging from the initial research—but lack of commercial deployment—of pre-crash sensors (shown in table 2), NHTSA had the potential to issue a truly innovative advanced airbag rule in 2000 but chose not to do so. Equipping vehicles with pre-crash sensors enables a vehicle to anticipate not only the likelihood of an imminent crash but the severity of it as well. The airbag inflation can then be varied relative to the force of

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[82] Ibid, p. 305
[83] *Research Safety Vehicle: Final Briefing*, Minicars, Inc., 1980
[84] "Delphi Develops World's First Commercial Passenger Occupant Detection System for Required Advanced Airbag Systems," news release from Delphi Automotive Systems, Oct. 16, 2000. http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/10-16-2000/0001338525&EDATE=

the impending crash, and in accordance with information from other inputs like occupant weight and pattern recognition sensors.

As the final rule was written, the required tests in the 208 revision did not necessitate any advanced crash-detection technology or mandate a dynamically variable airbag system. In fact, the practical result of the FMVSS revision was to require a binary solution, either (1) the deployment of airbags if a heavy occupant is in a seat or (2) no deployment of airbags if a light weight occupant (or no occupant) is in the seat. The 2000 FMVSS 208 revision, for advanced airbags, was not innovative.

Table 2

Technology	**Manufacturer Deployment Based on IR Response**	**Discussion of Activities which Post-Date the IR**
Buckle Sensors	Mercedes MY 1990-1998	Honda MY 1999, others plan to implement in MY 2000
Pre Tensioners	Numerous, MY 1990-1997	
Load Limiters	Numerous, MY 1990-1998	
Web Clamps	Numerous, MY 1990-1997	
Advanced Crash Sensing	Not requested in IR	Several will soon add this tech.
Multi Stage Inflation	None reported	Honda MY 1999, other to begin
On/Off Switch	GM MY 1997, Ford MY 1997, Chrysler MY 1998	
Child Seat Sensors	Mercedes MY 1998	
Seat Position Sensors	None reported	One will install in MY 2000
Weight/Pattern Recognition Sensors	None reported	Manufacturers will begin installing in MY 2000. Wide use expected soon.*
Capacitance Sensors	Not requested	Some may be in use, research ongoing
Pre-crash Sensors	**None reported**	**Research underway**
Infared Sensors	Not requested	Under research
Inflatable Knee Bolsters	None reported	Some manufacturers have used these devices and others are planning their use

Data from *Air Bag Technology in Light Passenger Vehicles*, Office of Research and Development, NHTSA, 2001.

Tire Pressure Monitoring Standards

Following the much publicized Ford-Firestone tire failure and rollover disaster, Congress enacted the Transportation Recall, Enhancement, Accountability and Documentation (TREAD) act in 2000. TREAD directed NHTSA to issue a rule requiring the addition of a monitoring system to alert drivers of improper and dangerous tire pressure levels.

In response to the TREAD mandate, NHTSA promulgated a final rule in 2002 which allowed manufacturers to comply by means of either (1) a direct pressure monitoring device or (2) an indirect system relying on wheel speed differentials observed by the anti-lock brake system. The indirect system presents numerous drawbacks to a direct approach—noted by NHTSA in its Notice of Proposed Rulemaking—including the inability to detect the following underinflated conditions: (1) two underinflated tires on the same axle, (2) two underinflated tires on the same side of the car (3) all four underinflated tires on the vehicle and (4) small pressure losses (between 15-40 psi, or 20%-30% of standard tire pressure).[85]

A U.S. Court of Appeals overturned the rule, stating that indirect TPMSs would not comply with the TREAD act. In April 2005, NHTSA issued a new rule requiring direct pressure monitoring in all four tires.

Direct tire pressure monitors are microelectromechical transducers, tiny devices typically comprised of a piezoelectric pressure sensor, temperature sensor, voltage sensor, accelerometer, microcontroller, radio-frequency circuit, antenna, and battery.[86] Part of the microelectrical mechanical systems (MEMS) family of technology that

[85] Notice of Proposed Rulemaking, 66 Fed. Reg. No. 144, 38982, NHTSA Docket 2000-8572
[86] "Pumped Up," *Mechanical Engineering*, April 2005

combines mechanical and electrical systems in computer-chip dimensions, mandatory direct tire pressure monitors on every vehicle will provide a huge boost for the fledgling MEMS industry. *Mechanical Engineering* magazine estimates "an instantaneous market for perhaps 70 million MEMS devices a year".[87] Currently, 90 million MEMS accelerators are installed per year for use as airbag triggers.[88]

According to the Alliance of Automobile Manufacturers, the first direct TPMS appeared on the 1997 Chevrolet Corvette.[89] By the time NHTSA issued the revised rule in April 2005 (requiring direct measurement) 18% of the cars sold by manufacturers in the Alliance were equipped with the devices.[90]

Thus the tire pressure monitor standard issued by NHTSA will result in technological diffusion, not innovation.

FMVSS 216 – Roof Crush Resistance 1971 Roof Crush Resistance Rule

The safety standard affecting roof strength has not changed since the time it was enacted in 1971, although NHTSA issued a preliminary revision in 2005. FMVSS 216, roof crush resistance, originally specified a maximum deformation of not more than 127 mm (5 inches, measured by the travel of the loading plate) at a force equal to 1.5 times the unloaded weight of the vehicle, applied to one side of the roof with a flat platen oriented at a 5 degree angle in quasi-static loading.

[87] Ibid
[88] Ibid
[89] "Tire Pressure Monitors Will be Added to Cars," *Los Angeles Times*, April 8, 2005
[90] Ibid

NHTSA released a study in 1989 evaluating the performance of the 1971 roof crush standard.[91] By normalizing the crush depth results for make and model and comparing the resultant crush depth index across model years, a roof crush trend was determined. According to the report,

> Cars of the mid 1960s actually had the strongest roofs on the tests, with a normalized average crush depth of -0.7. In the later 1960s, large cars emphasized a look with a wide, flat roof. That resulted in weaker roof crush performance, with a normalized crush depth of +0.9 in model year 1970. From model year 1974 onwards (post-Standard 216), roof crush resistance is better than in 1970 and the normalized score is usually closer to 0 (average strength). A more detailed look at the laboratory test results show that most cars easily exceeded the requirements of Standard 216, even before the standard took effect.

Since FMVSS 216 required no technological advance in new vehicles in order to "easily" achieve compliance, it follows that the standard was neither technologically innovative nor diffusive.

2005 Roof Crush Resistance Revision

Following the issuance of the first roof crush rule, interest in reducing the frequency of injuries due to rollover crashes (which accounted for one third of occupant fatalities in 2002) prompted NHTSA to investigate upgrading the roof crush standard. During the recent deliberation, NHTSA was presented with several opinions by automakers, (including Ford, GM, Daimler-Chrylser and Nissan), that there was no benefit to limiting headroom reduction, or roof crush, in a rollover test.

Ford submitted evidence to support this claim in 1999 based on its interpretations of dolly rollover tests (that initiate rollover by accelerating a vehicle sideways into a short

[91] *An Evaluation of Door Locks and Roof Crush Resistance of Passenger Cars*, DOT HS 807 489, NHTSA, 1989

barrier).[92] Ford documented that the peak compressive forces and head moments (bending) occurred prior to observable roof/pillar deformation. Ford surmised that because the peak forces occurred before the roof and pillars appeared to deform, there can be no causal link between roof deformation and dummy-experienced loads. Moreover, because occupant injury is dependent on these same forces, there must be no relationship between occupant injury and roof intrusion.

However, another study of the same data came to a more precise, and contrary, conclusion. Martha Bidez, a professor of biomedical engineering at the University of Alabama at Birmingham, led an examination of the Ford rollover test data (including accelerometers, dummy load cells and video stills), which became public through litigation. Yet instead of relying on the highly subjective "observable roof/pillar deformation" to determine the onset of structural intrusion (as Ford had done) the Bidez team analyzed accelerations on the driver and passenger side B pillar. Not only does the Bidez methodology afford a quantifiable profile of roof crush, it defines it in a more precise way, as accelerometer data was recorded at 12,500 Hz and 25,000 Hz, compared to high speed video capture that recorded visual images at a rate of 500 frames/sec (~500 Hz).[93]

While both the Ford and the Bidez team agreed that peak compressive neck forces occurred at 540 ms, the Bidez investigators found that objective roof crush/roof intrusion occurred at 513 ms compared to the "observable roof/pillar deformation" Ford witnessed

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[92] *Rollover Occupant Kinematics & Roof Pillar Deformation*, Presentation by Ford Motor Co., NHTSA-1999-5572-75

[93] *Roof crush as a source of injury in rollover crashes*, Bidez, M., Cochran, J., King, D., March 30, 2005. Available from Public Citizen

at 590 ms. So the Bidez team finds the sequence of two critical events, roof crush onset and maximum compressive neck forces, in reverse order.

In addition, Bidez noted that the passenger dummy experienced greater loads than the driver dummy, consistent with NHTSA's own field data showing greater injury to far-side occupants in rollover crashes.[94] Moreover, the loads experienced by the passenger dummy exceeded documented failure loads of the human spine. Bidez thus concludes that "Roof crush into the survival space of restrained dummies was the direct cause of neck loads, which were predictive of catastrophic injury in rollover crashes."[95]

Perplexing throughout this exercise is the understanding that while Ford had the ability to investigate roof crush in the same manner as Bidez (using objective data), they opted for a subjective and less precise approach. In doing so, Ford representatives obscured from NHTSA the need for more advanced rollover prevention and roof crush protection technology.

Subsequently, in August 2005, NHTSA issued a proposal to upgrade the roof crush resistance standard that notably (1) increases the loading requirement to 2.5 times the weight of the vehicle (2) replaces the plate movement limit with a limit on headroom reduction (the distance between the crushed roof and a 50th percentile male dummy) (3) extends the rule to include vehicles up to 10,000 lbs., and (4) eliminates a previously imposed load ceiling for passenger cars.[96] NHTSA estimates the revision will save 13 to 44 lives per year.[97]

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[94] Ibid
[95] Ibid
[96] Roof Crush Resistance, NPRM, NHTSA-2005-22143
[97] Ibid

The revised rule does not mimic real life rollover crashes or spur innovative structural improvements to passenger vehicles. Further, because it now measures the headroom between the roof and a 50^{th} percentile male dummy, on average it will allow more deformation than the previous rule did. (NHTSA found that vehicles, on average, had over 7 inches of headroom between the roof and the test dummy, compared to the previous limit of 5 inches of travel.)[98] Additionally, because the proposed rule applies force only to one side of the roof—at a shallow role and pitch angles, and at a steady rate—a substantial part of the load is supported by the windshield and B-pillar. This has led automakers to manufacture vehicles that pass the test by relying on stiff windshield glazing and its bonding to provide over 30 percent of roof strength.

In a rollover crash, however, the windshield is typically fractured during the first roof impact. As the vehicle completes a roll, side pillars and roof panels now more easily buckle and deform into the occupant compartment and fracture side windows, causing occupant injury and creating portals for occupant ejection. Typically, the trailing side (far side) of the roof suffers substantially more damage in a rollover, which explains why far-side occupants suffer more injuries and fatalities in a rollover.

But the revised standard does not account for these effects—or any realistic behavior that accompanies a dynamic rollover event—and is therefore deficient. The inadequacy of the proposed roof crush test is corroborated by the modest predicted benefit (at most 44 fatalities prevented) estimated by NHTSA.

If NHTSA had chosen to upgrade FMVSS 216 by requiring two sided testing or a dolly rollover test (already on the books as an optional test in FMVSS 208), the standard would no doubt have encouraged the production vehicles with much stronger—and

[98] *Quasi-static and dynamic roof crush testing*, Rains, G.C., Van Voorhis, M.A., NHTSA, June 1998

safer—roof structures. As it stands, the proposed 216 revision will not even approach the current paradigm for rollover protection, the Volvo XC90, with a roof strength of 3.5 to 1, which can sustain three rollovers without deforming the roof or fracturing the windshield.

More than 10,000 people die in rollover crashes every year, but NHTSA is prepared to issue a standard that, by its own admission, would only save 44 lives at most. The long-awaited and anemic revision to the roof crush standard is neither innovative nor diffusive.

Summary of NHTSA's Role in Five Major Rulemakings

FMVSS 208 – Airbag Revision

NHTSA was ordered by Congress in 1991 to issue a rule that required airbags be standard equipment in cars and light trucks, as manufacturers were already partially doing. The first rule took effect over 40 years after the invention of the first airbag.

FMVSS 208 – Advanced Airbag Revision

In 2000, NHTSA revised standard 208 to protect lighter occupants and reduce the frequency of airbag-induced injury. NHSTA's solution resulted in an on/off configuration: the airbag inflates (less powerfully than before) if a heavy object is seated or does not inflate if sensors detect a light occupant or empty seat. Other technology in development at the time of the revision had the potential to make airbag systems much more dynamic, but NHTSA did not require their deployment.

Tire Pressure Monitoring Rule

Congress ordered NHTSA to write a new safety standard, a tire pressure monitoring rule, following the Ford-Firestone fiasco. NHTSA's first attempt, permitting an indirect monitoring system relying on existing ABS technology, was rejected by the courts. NHTSA rewrote the rule to require direct monitoring by advanced—but not innovative—MEMS pressure sensors.

FMVSS 216 – Roof Crush Resistance

NHTSA issued a roof crush resistance rule in 1971 and the agency later concluded that "most cars easily exceeded the requirements of Standard 216, even before the standard took effect."

FMVSS 216 – Roof Crush Resistance Revision

NHTSA proposed a revision of the roof crush resistance standard in 2005, 34 years after it was written. The proposed standard increases the loading requirements but is only estimated to prevent at most 44 fatalities per year. The proposal does not encourage the type of life-saving roof manufactured by some automakers.

The Entrepreneurs – Contests and the Small Business Innovation Research (SBIR) Program

On October 4, 2005, an aerospace team led by Burt Rutan and Paul Allen won the Ansari X Prize, which offered a $10 million reward to the first privately funded team to successfully pilot a manned flight to the threshold of space and return to earth safely.[99] As the X Prize Foundation notes, some of the earliest aviation achievements—and indeed much of the early aviation industry—was sparked by contests, including the challenge to fly nonstop from New York to Paris, met by Charles Lindbergh in 1927.

Prizes offered for technological accomplishments have the effect of exponentially increasing private research and development expenditures. The prize for the transatlantic flight, $25,000, inspired nine teams to spend more than $400,000 on the project.[100] Paul Allen alone invested more than $20 million to win the $10 million X Prize.[101] Even before modern aviation, some of the most indispensable innovations were spurred through a prize system, including the chronometer (to accurately measure longitude while sailing),[102] and canned food (requested by Napoleon's army).[103]

More recently, the EPA, together with 25 utilities, offered a $30 million Super Efficient Refrigerator Prize (SERP) for the first manufacturer who could design and mass-produce a chlorofluorocarbon-free refrigerator 25 percent more efficient than

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[99] X-Prize Foundation Fact Sheet, http://www.xprizefoundation.com/about_us/fact_sheet.asp
[100] X-Prize Foundation Fact Sheet, http://www.xprizefoundation.com/about_us/fact_sheet.asp
[101] "Space Ship One wins $10 million X Prize," Alan Boyle, MSNBC, October 5, 2004, http://www.msnbc.msn.com/id/6167761/
[102] "Longitude clock comes alive," Julianna Kettlewell, BBC News, March 11, 2002, http://news.bbc.co.uk/1/hi/sci/tech/1864737.stm
[103] "The canning process: old preservation technique goes modern," Dave Blumenthal, *FDA Consumer*, http://www.fda.gov/bbs/topics/CONSUMER/CON00043.html

comparable 1993 models.[104] Whirlpool Corporation won the "Golden Carrot" contest with a creatively redesigned refrigerator, replacing refrigerant CFC-12 with HFC-134a and a host of other technological improvements.[105] But the payout scheme forced Whirlpool to sell 250,000 refrigerators by July, 1997 to receive the entire prize, and sales of the unit were sluggish.[106] Whirlpool actually discontinued the model before the deadline expired.[107]

Though the refrigerator itself was not commercially successful, the Golden Carrot award provided Whirlpool, and energy efficient appliances, with significant publicity and encouraged other manufacturers to follow suit. [108] The one prize-inspired design did not live on, but energy-efficient siblings soon came to market.

Similarly, the Department of Energy and the Defense Department have initiated contests challenging teams to engineer vehicles that demonstrate technology which drastically improves the performance of passenger vehicles. The DOE contest, FutureTruck, was a cooperative effort between Argonne National Laboratory, domestic automakers, and 15 North American universities. In the first two years of the program, 2001 and 2002, General Motors cosponsored the competition and supplied Chevrolet Suburbans to each university team, which was tasked with reducing emissions and improving efficiency by at least 25 percent.[109] From 2003 to 2005, Ford assumed the role

[104] "The race to make the fridge of the future," Home Energy Magazine Online, January/February 1993, http://homeenergy.org/archive/hem.dis.anl.gov/eehem/93/930116.html
[105] Ibid
[106] *How effective are prizes as incentives to innovation? Evidence from three 20th century contests*, Davis, L., Davis, J., presented at the DRUID summer conference 2004 on Industrial Dynamics, Innovation and Development, June 2004
[107] Ibid
[108] Ibid
[109] FutureTruck, http://www.transportation.anl.gov/research/competitions/futuretruck/

of industry sponsor and offered up Explorers for the modifications.[110] Competition designs were evaluated through various laboratory and on-road tests, though no monetary award was offered. FutureTruck has ended, though a similar contest, Challenge X, sponsored by GM and DOE, continues. Information provided by Challenge X notes that the Department of Energy has teamed with industry and academia to sponsor contests more than two dozen times since 1987.[111]

The Defense Department takes a slightly different approach, awarding $2 million from the Defense Advanced Research Projects Agency in 2005 to any team that could build an autonomous vehicle capable of traversing a 131.2 mile course over desert terrain through its "Grand Challenge." Team entrants ranged from university students to independent hobbyists to corporations. Vehicles that were invited to compete in the final race exhibited novel and sophisticated control algorithms, high-speed video imaging, laser-based range finding, GPS navigation, and other related technology. The winning team from Stanford completed the course in a time of 6 hours, 53 minutes.[112]

For its part, NHTSA sponsors no contests like FutureTruck or the Grand Challenge, which necessarily limits the agency's exposure to the type of prize-inspired innovations encouraged by DOE and DARPA. While NHTSA's joint R&D programs typically focus on large manufacturers, a contest might open the door for many small entrepreneurs who are commonly overlooked. In fact, the agency's Small Business Innovation Research (SBIR) program, which funds research proposals for entrepreneurs, is intended to accomplish just such an outreach, but the program has been hampered in recent years due to cost constraints.

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[110] FutureTruck, http://www.transportation.anl.gov/research/competitions/futuretruck/
[111] About Challenge X, http://www.challengex.org/about/index.html
[112] http://www.darpa.mil/grandchallenge/

From 1999 to 2005, NHTSA awarded no more than 3 SBIR grants per year, and never approved any of the projects to advance beyond phase I, where funding is limited to $100,000.[113] Unfortunately, this sum lies between what NHTSA considers a moderate amount and what engineering firms consider barely useful for innovative product development. According to NHTSA engineers, the SBIR program is noble but difficult to fund beyond the initial phase given the agency's limited R&D budget. However, SBIR has led to the successful development of vehicle safety technology in the past, including a magnetohydrodynamic sensor to detect angular rotation in crash dummies.[114]

Currently, the importance of reaching out to even smaller innovators might be totally lost on NHTSA, which has not employed an inventor contact since Dr. Carl Clark, a Physical Scientist in the Office of Crashworthiness Research, retired from the agency in 1990.[115]

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[113] US DOT Small Business Innovation Research (SBIR), http://www.volpe.dot.gov/sbir/
[114] Telephone conversation with Steve Summers, NHTSA Vehicle Safety Research, February 15, 2006
[115] Telephone conversation with Eric Bolton, NHTSA communications office, June 15, 2005

6. Current Auto Safety Technology Review

The following discussion of various auto safety concerns and prophylactic technologies is organized according to five pertinent categories: visibility, chassis and body, occupant restraint, control systems, and sensors.

Visibility	Chassis and Body	Occupant Restraint	Control Systems	Sensors
Hydrophobic glass	Footwell design	Seat belt use reminders	Electronic Stability Control	Weight and passenger detection
Adaptive headlights	Passenger compartment integrity	Seatbelt Pretensioners and Retractors	Gyroscopic Roll Sensing	Driver alertness monitoring
Head Up Display	Pedestrian safety	Improved 3-point belts	Electronic brake assist	GPS systems
All-weather head lighting system	Commercial truck underride protection	4-point belts	Extra-vehicular object detection	Event data recorders
	Bumpers	Advanced seatbelt materials	Lane departure and lane keeping	Biometrics
	External Airbag Bumpers	Inflatable seatbelts		
		Headrest geometry and active headrests		
		Integrated child seats		
		Airbags – side, lower extremity		
		Side laminated Glass		

Visibility

Hydrophobic Glass

Hydrophobic coatings bond to glass at the molecular level and force water to bead up and roll off the surface. In studies conducted by the University of Michigan Transportation Research Institute, hydrophobic coatings decreased the minimum visual angle resolved by 50% and reduced driver response times by more than one second.[116] The study notes that "in more practical terms, visual performance improved in the treated-nighttime conditions to approximately the level of performance in the untreated-daytime condition."[117]

Until recently, automotive hydrophobic coatings were only effective for weeks or months at a time. Newer products utilizing nanoscale molecules remain useful for up to five years and 30,000 miles.[118] To date, however, no permanently hydrophobic treatments are available for commercial auto glass.

Adaptive Head-lights

Adaptive headlights featured on BMW vehicles actuate the front headlight module with a complex system of motors according to steering, wheel, acceleration and Global Positioning System (GPS) inputs. As a driver enters a turn the adaptive headlight

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[116] *The influence of hydrophobic windshield coating on driver visual performance and response time*, Sayer, J., Meford, M., Flannagan, M., Sivak, M., Kojima, S., University of Michigan Transportation Research Institute, UMTRI-97-31, cited from abstract
[117] Ibid
[118] Email from Harry Stulajter, Nanotec Pty Ltd

system illuminates the bending roadway. Illume LLC has developed a liquid crystal film able to steer and bend light without motorized elements.[119]

Concerns have been raised about the potential for adaptive headlight systems to increase glare or blind drivers in oncoming vehicles. Any adaptive headlight system should balance driving visibility with oncoming glare and would ideally not interfere with other drivers at all.

Head-Up Display

Siemens VDO is the first automotive supplier to offer a head-up display system that allows speed, navigation, and vehicle status indicators to be projected directly onto the windshield.[120] Siemens claims a safety benefit as a result of a 50 percent reduction in the "time needed to absorb information".[121]

All-Weather Head Lighting System

The late professor of optometry at Indiana University, Merrill Allen, O.D., Ph.D., proposed a novel front lighting solution for passenger vehicles that he claimed can reduce dangerous scattering from fog, rain, or snow; and can increase the driver's visual range. Professor Allen's headlight system requires the use of two pairs of lights, a low-mounted pair pointing toward the road and a roof-mounted pair lighting objects above five feet

[119] Illumeco LLC, http://www.illumeco.com/Technology.htm
[120] Head-up displays, http://www.siemensvdo.com/products_solutions/interior/information-systems/head-up-displays/head-up-displays.htm
[121] Ibid

(including retroreflective signs).[122] The system would put no light in a zone from three to five feet above the roadway.

By creating an unlighted area directly in line with the driver's horizontal visual path, Allen's dual headlight system allegedly reduces harmful atmospheric backscatter that can result when particulates found in fog, rain, and snow attenuate light.[123] According to NHTSA, rain, snow, or sleet is a factor in more than 20 percent of motor vehicle crashes that occur in dark light conditions.[124] Though Allen does not present data to support his claim; the simplicity of his all-weather headlight system merits further investigation.

Chassis and Body

Footwell Design

As the seatbelt usage rate and the fleet penetration of airbag-equipped vehicles increases, more passengers survive motor vehicle crashes, but with serious injuries. Some of the most frequent and debilitating injuries are those to the lower extremities, including the ankle, lower leg, knee, hip and thigh. A 1997 study by the University of Maryland National Study Center for Trauma/EMS noted the special difficulty of characterizing lower extremity injury (LEI) disability using conventional trauma metrics, which were intended to measure risk of death, not quality of life.[125] Though injuries to

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[122] *Forensic Aspects of Vision and Highway Safety*, Merrill Allen, Bernard Abrams, Arthur Ginsburg, Leslie Weintraub, Lawyers and Judges Publishing Company, 1999, p. 137
[123] Ibid, p. 138
[124] *Traffic Safety Facts: 2004 Data*, DOT HS 809 911
[125] *Lower extremity injury among restrained vehicle occupants*, University of Maryland National Study Center for Trauma/EMS, presented at the first annual CIREN conference, October 20, 1997

feet and legs may rank low on injury severity scales, they are often accompanied by poor post-trauma outcomes including permanent physical disability and psychological duress.

Monetarily, the societal cost of lower extremity injuries is approximately $8 billion annually.[126] This pain and suffering may be easily prevented. Structural improvements for the reduction of lower extremity injuries (LEIs) are accessible and straightforward, according to the textbook on vehicle crashworthiness and occupant protection written by the American Iron and Steel Institute: "Perhaps the only solution is to strengthen the footwell to reduce the intrusion and to have a collapsible brake pedal."[127] Indeed, a 2002 University of Maryland study of LEI found that the floor and toe pan were the most frequent injury source, causing 23% of lower extremity injuries.[128] Foot controls accounted for 6% of injuries.[129]

Solutions to reduce floor and toe pan intrusion lie in stronger and stiffer alloys as well as improved body structure design. Less dangerous foot controls can be engineered to either collapse or break in a crash.

Collapsible pedals, such as those found on the Mazda 6, actually pivot away from driver's legs in the event of structural intrusion. A cross member attached to the dash interacts with the out-of-position pedal assembly and causes the accelerator and brake to rotate away from the passenger cabin. According to Edmunds.com, Mazda claims their

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[126] *An Overview of Knee-Thigh-Hip Injuries in Frontal Crashes in the United States*, Kuppa, K., National Highway Traffic Safety Administration, Presented at the 18th International Technical Conference of Enhanced Safety of Vehicles, 2003

[127] *Vehicle Crashworthiness and Occupant Protection*, chapter 6, American Iron and Steel Institute, http://www.autosteel.org/safety_book/index.htm

[128] *Real (leg) injuries, Real People*, University of Maryland CIREN team, presented at the ninth quarterly CIREN meeting, August 22, 2002

[129] Ibid

collapsible pedal design may be the difference "between an ankle that's merely sprained and one requiring a walking cast for 6 months."[130]

Passenger Compartment Structural Integrity

Recently publicized internal GM documents[131] and advanced Volvo design methodologies[132] reveal long known axioms and more recent adaptations of safe vehicular structures. The keys are relatively simple: small car compatibility, strong A and B-pillars, stiff rocker panels (the longitudinal sill below the doors), and reinforced roof members. The results are striking. Video of a Volvo XC 90, built to this paradigm, in a dolly rollover test, shows the SUV rolling over nearly three times without structural buckling or substantial roof or body intrusion.[133]

A high-strength car need not be heavy, either. By careful material selection and placement Volvo has been able to limit the annual body weight increase to 10 kg from platform to platform.[134]

Volvo is following the lead of the steel industry-sponsored UltraLight Steel Auto Body (ULSAB) project, which demonstrated that advanced steel alloys and

[130] *Preview: 2003 Mazda 6*, Edmunds.com, October 17, 2001, http://www.edmunds.com/reviews/preview/articles/47610/article.html
[131] Minutes from a May 13, 1966 General Motors meeting to discuss work in energy absorption, Report number PG-21773, available at http://www.citizen.org/autosafety/rollover/crashwrth_/
[132] *Safety Cage Design in the XC90*, Jonas Bernquist, Volvo Car Corporation, presented at the Great Designs in Steel Seminar, February 2004
[133] Video of a dynamic rollover test of a Volvo XC-90, http://www.citizen.org/autosafety/images/XC-90Video.avi
[134] *Safety Cage Design in the XC90*, Jonas Bernquist, Volvo Car Corporation, presented at the Great Designs in Steel Seminar, February 2004

manufacturing techniques can be employed to produce a stronger, lighter, and safer steel structure (compared to conventional automotive designs)—and without cost penalties.[135]

The success of Volvo's "safety cage" design previews the next generation of vehicle body structures, which, again, engineers agree must not be heavy to be safe. A 2005 study commissioned by the aluminum manufacturers' association and conducted by Dynamic Research Inc (DRI) decoupled the effects of size and weight on safety, concluding that, in part, maintaining a vehicle's size while reducing weight *lowers* the risk of injury to occupants and other drivers.[136] Future vehicle designs can accomplish the goal of a lighter and stronger body structures by incorporating aluminum (already a feature of the Audi A8 and Jaguar XJ) and advanced lightweight composites (proposed by the Hypercar, Inc. concept, among others[137]).

Cost and performance tradeoffs (e.g. stiffness versus energy absorption) will need to be thoughtfully considered in any vehicle prototype not relying on steel, but the reality of significantly lighter and safer vehicles is within reach.

Pedestrian Safety

Each year approximately 4,500 pedestrians are struck and killed by motor vehicles in the US, accounting for 11% of all traffic fatalities.[138] The problem is greater in more urbanized societies, such as Japan, where pedestrians account for 27% of traffic

[135] *UltraLight Steel Auto Body (ULSAB) Final Engineering Report*, March 1998, http://www.autosteel.org/ulsab/ulsab_eng_rpt_index.htm

[136] *An analysis of the effects of SUV weight and length on SUV crashworthiness and compatibility using systems modeling and risk-benefit analysis*, Kebschull, S., Kelly, J., Auken, R., Zellner, J., Aluminum Association and DRI, 2005

[137] *Design and Manufacture of an Affordable Advanced-Composite Automotive Body Structure*, Cramer, D.R., Taggert, D.F., Hypercar, Inc., Proceedings of the 19th International Battery, Hybrid and Fuel Cell Electric Vehicle Symposium & Exhibition, 2002

[138] *Traffic Safety Facts: 2004 Data*, DOT HS 809 911

fatalities, and Europe, where the pedestrian fatality fraction approaches 30%.[139] Pedestrian fatalities can be even more frequent in poorer countries lacking advanced roadway planning, signaling, signage and education.[140]

While NHTSA lacks any rule or design guideline for pedestrian safety, the European New Car Assessment Program (Euro NCAP) already includes pedestrian safety tests. The Euro NCAP program evaluates 25 mph impacts of leg dummies and headforms at two locations on both bumpers and hoods.[141] A separate star rating for pedestrian safety is assigned to a vehicle based on the results of the leg and headform tests.

The European Commission recently established the first pedestrian safety provisions for motor vehicles. The regulations, which took effect in October 2005, specify force limits and injury criteria for the interaction of legs and heads with bumpers and hoods.[142] More aggressive rules go into effect in 2010.

Foreign manufacturers and suppliers, in turn, are leading the way in the design of vehicles that are less deadly to pedestrians. Honda, in addition to developing the first anthropomorphic dummy to mimic pedestrian kinematics (the POLAR I, in 1998), has announced a novel "pop-up" hood which raises the rear portion of the hood (near the windshield) 10 cm in the event of a pedestrian impact.[143] The raised hood increases the

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[139] "Vehicle Interactions with Pedestrians," *Accidental Injury: Biomechanics and Prevention*, (Chapter 22), 2000. Saul, R.A., Edlefson, J.F., Jarret, K.L., Marous, J.R.
[140] *Pedestrian traffic injuries in Mexico*, Hijar, M., Vazquez-Vela, E., Arreola-Risa, C., Injury Control and Safety Promotion, 2003. Vol. 10, No. 1-2, pp 37-43
[141] Pedestrian impact test, Euro NCAP website, http://www.euroncap.com/content/test_procedures/pedestrian_impact.php
[142] Directive 2003/102/EC of the European Parliament
[143] "Honda develops pop-up hood for safety; reduces impact to pedestrians in the event of a collision," Press release, Honda Motor Company, August 24, 2004

space between the relatively forgiving sheet metal hood and hard engine components below.

Even without a pop-up hood, the engine compartment can be designed to maximize the distance between the sheet metal hood and dangerously hard elements like the alternator and engine block. Moreover, a fundamental rethinking of the frontal structure may be required to achieve even greater levels of protection. Given that most vital components are now shrouded under a sheath of metal and plastic, the days of "popping the hood" to inspect an engine are all but over for the average motorist. (Owners of hybrid vehicles are even proactively discouraged from tinkering with the drivetrain.) Engine access today has become a question of fluid replacement (oil, brake, coolant, windshield) for the most part. *Car Design Online* notes that these replenishable reservoirs (or access to them) can be located in a more convenient space.[144] By eliminating the need for frequent operability, the hood could be manufactured of a material and design more optimized to dissipate the energy from pedestrian impact. Hood airbag designs, to protect pedestrians, are also being developed.[145]

One of the most radical pedestrian protection systems was featured on the experimental Minicars RSV, which had a retaining bar that deployed vertically from the bumper after a pedestrian had been thrown onto the hood, keeping the pedestrian on top of the vehicle and preventing him from being tossed back onto the roadway as the vehicle decelerated.[146]

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[144] Car Design Online, Pedestrian Safety, http://www.cardesignonline.com/safety/pedestrian-safety.php
[145] Discussion with Carl Clark, January 16, 2006
[146] *Research Safety Vehicle: Final Briefing*, Minicars Inc., 1980

Commercial Truck Underride Protection

Federal Motor Vehicle Safety Standard 223, rear impact guards, specifies the size and strength of guards mounted to the rear of commercial truck trailers that are designed to prevent light duty vehicles from riding under the trailer during a collision. Unfortunately, the standard allows 305 mm of underride (the horizontal distance between the guard and the rear of the trailer). This clearance facilitates easier docking and cargo loading, but compromises the safety of motorists in cars. The Impact Project, a partnership between the State University of Campinas (Brazil), General Motors-Brazil, and Mercedes-Benz-Brazil, recommends eliminating any allowable underride distance between the guard and the rear edge of the trailer.[147]

Further, no lateral or side guard protection is required by the Federal Motor Vehicle Safety Standards, even though 16 percent of fatal vehicle crashes occurred at the sides of large trucks, according to the Underride Network, an issue-specific safety group.[148] Europe has required some form of side guard protection for large trucks since 1989.[149] An effort by NHTSA and truck manufacturers to improve both rear and side underride protection seems long overdue, especially considering that Congress investigated the possibility of implementing European-style bumper guard in the 1960's, only to be thwarted by the Jimmy Hoffa-led Teamsters and the trucking industry.

Bumpers

Although conventional bumper structures are not intended to significantly contribute to vehicle crashworthiness or protect vehicle occupants in crashes, bumpers

[147] The Impact Project, http://www.fem.unicamp.br/~impact/standards.htm
[148] http://www.underridenetwork.org/indexpage.html
[149] Directive 89/297/EEC, Lateral protection (side guards) of certain motor vehicles and their trailers

fulfill a safety function by shielding fuel, cooling, exhaust, and lighting/signaling systems from damage. As such, vehicle owners benefit from a bumper that does not damage easily or require frequent repair or replacement.

The first bumper standard issued by NHTSA required that bumpers sustain only cosmetic damage in a 5 mph collision. In 1982, however, the agency, under the auto-industry friendly Reagan administration, rolled back the requirements and allowed unlimited bumper damage in a 2.5 mph test as long as no damage to other vehicle systems or body panels occurs.[150] Today, some manufacturers continue to trade on the old standard, marketing "5 mph bumpers."[151]

Overall, the 2.5 mph bumper standard—petitioned for by automakers—resulted in significantly lighter and weaker bumper designs that are easily damaged in low speed collisions. The Insurance Institute for Highway Safety reported that 5 of 6 model year 2004 midsize sedans tested in 5 mph collisions earned poor or marginal bumper ratings by IIHS metrics. The average damage per test for all 6 tests was $741.[152] These bumpers do not incorporate what Mike Ciccone, special projects coordinator for IIHS, calls the "main elements" of effective bumper design, "overhang, energy-absorbing material and a strong enough bumper beam."[153] Whether or not the design is old or new, without attention to these components, bumpers will damage easily, incurring costly repairs and compromising the protection of vital safety systems.

[150] *An evaluation of the bumper standard – as modified in 1982*, DOT HS 807 072, February 1987
[151] Features and Options, Kia Spectra, http://www.kia.com/newspectra/spectra-features.php
[152] "Five of 6 midsize cars earn low ratings in 5 mph crashes to test the bumpers," news release, IIHS, February 29, 2004
[153] "Bumper battleground—automakers, insurers continue to fight over standards," Drew Winter, Ward's AutoWorld, July 1, 1998

External Airbag Bumpers

Under contract from NHTSA in the 1970's, Research Safety Vehicles (RSVs) were designed and built to withstand much greater crash forces than current passenger vehicles are required to, in part by employing a frontal structure capable of absorbing significant crash forces. For example, test results of the Minicars RSV showed that passengers would walk away from a 50 mph frontal crash in the experimental car.[154] NHTSA frontal crash tests do not exceed 30 mph.

The Minicars RSV proved that not only is significantly greater crashworthiness attainable for passenger vehicles, one route to superior frontal crash performance lies in advanced front structure design. Some engineers are hoping to achieve frontal crashworthiness similar to the RSV with lighter and more advanced bumper designs. One device, an external airbag (or airbag bumper) was first developed and tested in the mid 1990's by Dr. Carl Clark, early airbag investigator and former NHTSA scientist.[155] The airbag bumper is designed to inflate ahead of a vehicle in anticipation of a crash (utilizing crash anticipation technology like radar-based systems described in this report). Initial airbag bumper prototypes have demonstrated crash energy absorption of 19%.[156]

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[154] *The minicars research safety vehicle program phase III: technical summary*, Ausherman, V.K., Khadilkar, A.V., Syson, S.R., Strother, C.E., Struble, D.E., DOT HS 7-01552, September, 1981
[155] *Car Crash Theory and Test of Airbag Bumper Systems*, Clark, C., Young, W., SAE Technical Paper Series 951056
[156] Ibid

Restraint

Seatbelt Use Reminders

The National Academy of Sciences issued a report in 2003 on technologies to increase seat belt use. The NAS concluded that "NHTSA should encourage industry to develop and deploy enhanced belt reminder systems in an expeditious time frame, and NHTSA should monitor the deployment."[157] The Academy recommends a multiyear study of $5 million annually to study the effectiveness of enhanced belt use reminders, such as the FordBeltMinder, introduced in model year 2000 vehicles, which has been shown to increase driver belt usage rates from 71% to 76%.[158]

Seatbelt Pretensioners and Retractors

Before a crash (or at the beginning of a crash before significant body motion), belt pretensioners reel the seatbelt to a specified load level. When an occupant's inertia forces him into the belt following a crash, a retractor pays out the belt after the load exerted on it exceeds a predetermined level.

Pretensioners may be either electromechanical, designed to moderately tighten the belt and optimally position an occupant before a crash, or pyrotechnic, designed to firmly restrain an occupant just after a crash has occurred. Mechanical pretensioners may be

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[157] *Buckling up: technologies to increase seat belt use*, Transportation Research Board, National Academy of Sciences, 2003, p. 88
[158] *Effectiveness of Ford's belt reminder system in increasing belt use*, Williams, A.F., Wells, J.K., Farmer, C.M., Injury Prevention, Vol. 8, 2002, pp. 293-296

activated by control systems that detect loss of control or evasive maneuvers. Pyrotechnic pretensioners are triggered by any crash or pre-crash detecting sensor.

NHTSA studies have shown that pretensioners and retractors are effective in reducing injury criteria for head and chest regions in NCAP testing. On average, pretensioners and retractors reduced head injury criterion (HIC) values by 232, chest deflection by 10.6 mm and chest acceleration by 6.6 g's.[159] Pretensioners can substantially improve occupant restraint if activated before a rollover by a roll sensor.

According to NHTSA, approximately 63% of MY 2002 vehicles were equipped with pretensioners and approximately 84% were equipped with retractors or some other type of load-limiting system.

Improved Three-Point Belts

A relatively minor change in seat belt geometry could significantly improve the performance of three-point belt restraint systems. By reversing the points of attachments for the shoulder belt (so that the belt travels from the outboard side of the waist to the inboard side of the shoulder), lateral restraint—in the inboard direction—is increased, at least for certain crash modes such as rollover.[160] This result is somewhat obvious. Conventional shoulder belts extend across the outboard side of the body, making lateral inboard motion relatively easy.

Three-point belts with reversed geometry may require additional restraint systems to prevent injurious belt-neck interactions. Supplier Autoliv, in a recently published

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[159] *NCAP test improvements with pretensioners and load limiters*, Walz, M., NHTSA technical report, DOT HS 809 562

[160] *Seat integrated 3 point belt with reversed geometry and an inboard torso side-supoprt airbag for improved protection in rollover*, Bostrom, O., Haland, Y., Soderstrom, P., presented at the 19th international conference on the enhanced safety of vehicles (ESV), June 2005

study, tested the effectiveness of reversed-geometry belts in conjunction with side support airbags (SSA) mounted on the inboard side of the seat. In a simulated rollover, the reversed geometry belt and SSA improved lateral restraint (compared to a conventional three-point belt) without inducing severe neck loads.[161]

Reversed geometry belts require another innovation as well—integrated seatbelts, in which the belts are anchored directly to the seat (as opposed to the vehicle body). Integrated belts provide superior fit—and thus energy management—by more effectively coupling the seat and occupant during a crash. Even without a reversed geometry, integrated belts offer a safety benefit compared to conventional belt designs because of this advantage.[162]

Four-Point Seat Belts

Three-point belts, standard in passenger vehicles, cause thoracic and abdominal injuries in motor vehicle crashes. These injuries are not observed in auto racing crashes, where drivers are restrained with four, five, or six point belts. In light of this discrepancy, passenger vehicle manufacturers are beginning to evaluate the efficacy of four point belt designs.

Compared to three-point belts, four-point belts increase the surface area of the harness and thus reduce the stress on the belt fabric and the occupant. This superior energy management can reduce torso injury in less sturdy occupants. "At the age of 65, your ability to withstand crash forces is about one-fifth what it was when you were 20

[161] Ibid
[162] *Rolling Over on Safety: The Hidden Failures of Belts in Rollover Crashes*, Public Citizen, April 2004

because the chest bones deteriorate with age," notes Steve Rouhana, Ph.D., group leader of Ford's Safety Research and Development Department.[163]

Four point belts may also help improve passenger restraint in rollover crashes, which frequently result in partial or total occupant ejection. A 2004 Public Citizen study of seatbelt performance noted the shortcomings of seat belts in rollover crashes (17% of belted occupants are ejected in rollovers) as well as the superior restraint offered by four-point design.[164]

Despite the simplicity of the technology and its existence for many years in automotive racing, passenger vehicle manufacturers have yet to agree on the optimal deployment or ultimate benefits of the four-point belts. Mercedes is wary of any design that would hold the torso too tightly to the seatback, increasing the risk of whiplash.[165] Volvo envisions the four-point belts as a front seat only restraint, utilizing a loose fourth strap to maintain the proper occupant position in the event of an airbag deployment, not to distribute crash forces as a tightly pulled belt would.[166] Four-point belts may also face a problem of customer appeal, potentially being more cumbersome and difficult to buckle.

Seat Belt Materials

Another solution to mitigate seat belt injury is the use of more resilient seat belt webbing. Honeywell has developed a novel copolymer (Securus®) that exhibits improved elasticity when compared to traditional polyethylene terephthalate (PET)

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[163] "Volvo thinks if three are good, four are better," The Car Connection, www.thecarconnection.com
[164] *Rolling Over on Safety: The Hidden Failures of Belts in Rollover Crashes*, Public Citizen, April 2004
[165] "In Search of the Perfect Seat Belt," Tom Lankard, MSN Autos, http://autos.msn.com/advice/article.aspx?contentid=4019915&src=GBT
[166] Ibid

fibers—without sacrificing tensile strength. According to the developers, seat belts made from the Securus®, a combination of PET and polycaprolactone, elongate and absorb energy when loaded to the equivalent of approximately 400 pounds.[167] By absorbing some of the crash energy less force is transferred to the buckled occupant.

Constant force retractors (CFRs) are designed to accomplish a similar force reduction by paying out the belt at a defined load limit, usually 1,000 lbs. Securus®, on the other hand, becomes elastic at a lower load limit (400 lb) and can therefore cushion lighter passengers—including children and small women. A load-leveling mechanical CFR cannot adapt to heavier passengers either, unlike Securus® which will apply greater restraining force when needed, i.e., for a heavy adult male.[168]

Securus® still offers a safety benefit when compared to next-generation belt retractors in certain applications, says its manufacturer. New seat belt retractors are *digressive* force retractors, which are optimal for front seat occupants (as less restraint is necessary when passengers reach the airbag). In the rear seat however, an increasing amount of resistance is preferable, according to Mike Moore of Key Safety Systems, Director of Seat Belt Engineering for North America and Asia.[169] Key Safety Systems has designed a rear seat belt assembly employing the Securus® webbing and is currently working cooperatively with manufacturers. Moore estimates the advanced webbing will be offered in rear seat belts for MY 2008 or MY 2009 vehicles.[170]

Craig Task, Business Manager of Securus® fibers for Honeywell, claims that the new fibers present a noticeable improvement in crash tests and "have demonstrated a

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[167] *Securus tm Fiber: A Load Leveling Copolymer for Safer Seat Belts*, Levy, M., Phillips, C., Nagy, M., Honeywell Performance Fibres
[168] Ibid
[169] Telephone conversation with Michael Moore, Key Safety Systems, May 16, 2005
[170] Ibid

one- to two-star improvement toward the New Car Assessment Program (NCAP) five-star performance score in safety."[171] Independent testing has not verified these claims.

Inflatable Seat Belts

A number of suppliers and inventors have developed inflatable restraints intended to further improve the energy absorption and force distribution of belt restraints. BF Goodrich announced an inflatable seat belt design in 2000, though they have since abandoned the project. TRW has also patented an inflatable seat belt system.[172] Early inflatable cushions attached to seat belts were patented in 1980.[173]

A 1998 NHTSA study evaluating the effectiveness of inflatable tubular torso restraints (ITTRs) in rollover crashes found that inflatable belts offer superior restraint and impart lower tensile forces to the neck compared to the performance of a baseline 3-point belt in a simulated rollover crash.[174] Quantitatively, the inflatable belts reduced dummy excursion by 60 to 75 percent.[175] The study concludes that "occupant excursion can be reduced in rollover crashes with appropriate countermeasures, such as the ITTR."[176]

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[171] *Securus™ Fiber: The Next-Generation Safety-Belt Fiber: New Fiber Designed to Protect a Broader Range of Body Types*, News Release, Honeywell Performance Fibers, March 4, 2002
[172] Inflatable seat belt using MEMS device, US Patent 6,598,899, 2003
[173] Safety cusion attachable to belt-type restraints, US Patent 4,348,037
[174] *Evaluation of restraints effectiveness in simulated rollover conditions*, Rains, G., Elias, J., Mowry, G., presented at the 16th International Technical Conference on the Enhanced Safety of Vehicles (ESV), May 1998
[175] *Evaluation of restraints effectiveness in simulated rollover conditions*, Rains, G., Elias, J., Mowry, G., presented at the 16th International Technical Conference on the Enhanced Safety of Vehicles (ESV), May 1998
[176] Ibid

Side Window Laminated Glass

Laminated glass (like windshield glass) is being installed for side-windows in a small number of 2006 model year vehicles.[177] Historically, manufacturers chose to install lighter tempered glass in side windows. While laminated glass will reduce the risk of occupant ejection in a crash, it might frustrate occupant extraction after a crash because laminated glass must be sawed through (unlike tempered glass which shatters). Studies of the ejection-extraction tradeoff between have not been publicly reported.

Seat Design

Headrest Geometry and Active Headrests

Whiplash injuries, a consequence of poor seat design and head-neck restraint in rear crashes, cost the US $7 billion per year in insurance claims.[178] An extremely low-tech (and non-innovative) solution to lessen the incidence of whiplash injuries lies in proper positioning and headrest geometry. Of 165 model year 2006 seat designs tested by the Insurance Institute for Highway Safety, only 50% received a "good" rating for seat/head restraint geometry, indicating a significant potential for headrest geometry improvement within the fleet.[179]

Conventional headrests, though, are inherently limited in the amount of energy absorption, and thus injury prevention, offered. Active headrests are engineered to move closer to a passenger's head, and then absorb energy, in the event of a crash. The first

[177] "Laminated glass adds security and cuts highway noise," Anita Lienert, *Detroit News*, September 7, 2005
[178] *Injuries in auto accidents,* Insurance Research Council. 1999
[179] Rear crash protection vehicle ratings, IIHS website, http://www.iihs.org/ratings/

active headrests, offered in the 1997 Saab 9-5, were mechanically linked to a pressure-activated plate in the seat back. When inertial forces push an occupant into the seat, the seatback plate pivots the headrest against the occupant's head.

Newer designs feature an electromechanical system triggered by a crash sensor and actuated by an electromagnetic activation plate. A 2003 study showed a 43% reduction in neck injury claims rates for Saab, GM and Nissan models with active head restraints.[180]

Integrated Child Seats

A 2002 Public Citizen study of seat belts and child seats exposed the dangers of conventional three-point belts and child safety seats, especially for 4 to 8-year olds.[181] Children in this range are usually too small to be effectively restrained by three-point belts (engineered and sized for adults), and are unlikely to be properly positioned or restrained in a booster seat.[182] The study notes that ten times as many children under 5 were killed in crashes in 1997 (even though restrained with a seat belt, child seat or other device), than were killed by airbags during the entire period between 1993 and 1998.[183] While airbag/child incompatibility was the subject of much public outrage and government involvement, little progress has been made to improve the effectiveness of more conventional child restraints.

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[180] *Effects of head restraint and seat redesign on neck injury risk in rear-end crashes*, Farmer, C.M.; Wells, J.K.; and Lund, A.K, Traffic Injury and Prevention, 4: 83 – 90 (cited from IIHS website)
[181] *The forgotten child: the failure of motor vehicle manufacturers to protect 4- to 8-year-olds in crashes*, Public Citizen with C. Tab Turner and Susan Lister, April 2002
[182] Ibid
[183] Ibid

In conclusion, the Public Citizen study recommends the use of integrated child seats with five-point harnesses.[184] Integrated child seats are built into standard passenger vehicle seats and are accessed by folding down a portion of the rear seat, forming the child seat and revealing the harness. Besides being a permanent and more rigidly attached seat, integrated child seats offer superior crash protection and convenience, according to sources cited within the report.

Integrated child safety seats were developed in the 1990's and are offered by a number of manufacturers, including Volvo and Daimler-Chrysler.

Side Impact Airbags

Manufacturers currently employ three types of side impact airbags: torso bags, tubular bags, and side curtains. Torso bags are designed to protect adult torsos (and in some cases, hips) in moderate and severe side impacts. Tubular airbags (featured by BMW) and side curtain airbags inflate from the roof across the side windows to protect the head from impact with the side and side windows and to provide occupant ejection protection.

Recent side impact testing by IIHS highlights the importance of side impact airbags, especially those with head protection. Under test conditions simulating a mid-size SUV striking a small car perpendicularly at 31 mph, only two of 16 cars received an "acceptable" rating from the Institute, the only two equipped with optional side curtain

[184] Ibid

bags.[185] Without the optional protection both cars, the GM Cobalt and Toyota Corolla, were rated "poor."[186]

Lower Extremity Airbags

Six manufacturers (Audi, BMW, Chrysler, Kia, Lexus, Mercedes, Toyota) currently offer some type of lower extremity airbag system as a standard feature. These passive restraints are designed either to inflate directly into the knee or to inflate behind the padded knee bolster, which then presses against the occupants' legs. In both configurations lower leg airbags are intended to maintain a safe leg position and prevent the "submarining" of an occupant under the frontal airbag during a crash.

Curiously, though leg/knee airbags represent the newest application of airbag technology, manufacturers have been slow to publicize their deployment. To date, no studies evaluating the effectiveness of leg/knee airbags have been completed.

Control Systems

Electronic Stability Control

Electronic stability control coordinates a network of sensors that detect vehicle trajectory and driver input and provides stabilizing assist if the car begins to drift off course. ESC incorporates and improves upon anti-lock braking (ABS) and traction control systems (TCS) by aiding drivers in lateral skid or spinout (understeer and oversteer) and on slick and dangerous road surfaces. More than simply preventing wheel

[185] *New results of side impact crash tests: 14 of 16 small cars are rated poor in test that simulates crash with SUV; none of the 16 is good;* IIHS press release, March 6, 2005
[186] Ibid

lock or spin, ESC helps drivers maintain control of their vehicles *on their intended path*. ESC processors can quickly adjust individual wheel speed and engine power in a response time and profile that no passenger vehicle operator can accomplish, reducing the chance that the driver will lose control while cornering, braking, swerving and avoiding obstacles. Within the limits of braking and throttle response, ESC can correct driver error and loss of control caused by weather or road surfaces.

While ESC is not standard across the fleet, it is increasingly offered in more makes and models.[187] The Alliance for Automobile Manufacturers claims that 42% of 2006 model year vehicles have electronic stability control installed as a standard feature, and a total of 63% of new vehicles offer ESC as either standard or optional equipment.[188] In fact, the plethora of ESC systems has encouraged rival automakers to employ a dictionary of acronyms for their proprietary systems. Major automakers use at least 10 different names for the same technology (DSC, VSP, PSM, VDC...etc.). The ESC Coalition, a joint effort by suppliers Bosch and Continental, has formed to inform consumers about the benefits of this active safety technology and decode industry jargon.

The benefits of ESC are already being observed. According to the 2004 preliminary results of a NHTSA report analyzing the effectiveness of ESC, passenger cars equipped with ESC are 35% less likely to be involved in single vehicle crashes and 30% less likely to be involved in fatal single vehicle accidents than cars without electronic stability control.[189] SUV's are 67% less likely to be involved in single vehicle crashes and 63% less likely to be involved in fatal single vehicle crashes according to this

[187] "ESC Rates Skyrocketing," *Ward's Auto World*, March 1, 2005

[188] "NHTSA's new leadership will face host of pending regulatory issues in 2006," *BNA Outlook 2006*, January 30, 2006

[189] *Preliminary Results Analyzing the Effectiveness of Electronic Stability Control (ESC) Systems*, Evaluation Note, DOT HS 809 790, September 2004.

study.[190] The Insurance Institute of Highway Safety estimates 7,000 fatalities could be prevented every year if ESC were standard equipment on all passenger vehicles.[191]

Yet even with this impressive track record, less than half of all vehicles manufactured in the US are equipped with ESC as a standard feature.[192] This is in part due to an uninformed public, an unwilling retail sales force, and NHTSA's slow pace. According to Adrian Lund, Chief Operating Officer of IIHS, between 5% to 10% of car buyers request ESC when it is an option, though as many as 75% responded that they were "probably interested" in it when the benefits of ESC were explained as part of a J.D. Power and Associates Survey.[193] Though ESC is slowly becoming standard[194] it is otherwise packaged with additional options and promoted with varying enthusiasm, depending on a dealer's need to sell vehicles and meet quotas or cash flow needs. Moreover, though ESC costs about $100 to install, the package or option price can exceed five times that value, presenting an even more difficult purchase option for a buyer unfamiliar with the effects and benefits of an unseen electronic control system.[195]

For its part, NHTSA is monitoring the performance of ESC-equipped vehicles (through their record in crash databases), and has been directed by the SAFETEA-LU statute to establish a rollover prevention rule "consistent with stability-enhancing technology." The law requires NHTSA to issue a proposed rule by October 1, 2006 and a final rule by April 1, 2009.

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[190] Ibid
[191] "Electronic stability control found effective," news release, IIHS, October 28, 2004
[192] *A little-known safety feature that could save your life*, ConsumerReports.org, April 2005
[193] Ibid
[194] "ESC Rates Skyrocketing," *Ward's Auto World*, March 1, 2005
[195] "Stability systems may boost suppliers," *Detroit News*, November 30, 2004

Gyroscopic Roll Sensing

Gyroscopic roll sensing is the latest evolution of active safety technology in the family of ABS, TCS and ESC. Featured in the Volvo XC-90 SUV and some late model Ford Explorers, a roll stability control (RSC) system utilizes a dedicated gyroscope to monitor body roll. When the dynamics of the vehicle suggest a rollover is likely, the RSC program counteracts by adjusting brake torque and throttle application to reduce corning motion and the resultant roll moment. In a sense, the RSC system activates the underlying ESC (which in turn incorporates ABS and TCS) when roll sensors detect an unstable roll condition. Rollover sensors can also activate seat belt pretensioners, helping to restrain an occupant in the event the vehicle actually tips. Preventing rollover is a significant safety concern as over one-third of all motor vehicle occupant fatalities occur in rollover accidents.

Electronic Brake Assist

In the event of extreme braking, or when a pre-crash sensor detects an imminent crash, electronic brake assist reinforces manual pedal inputs and assure that maximum braking force is applied. In the case of an evasive maneuver, the master cylinder can be primed to ready the brake assembly to deliver maximum braking force. Continental Automotive Systems claims that brake assist can reduce the stopping distance of a vehicle traveling at 100 km/h by 33 meters.[196]

[196] Brake assist systems, http://www.conti-online.com/generator/www/de/en/cas/cas/themes/products/actuation/brake_assistents_en.html

Extra-vehicular Object Detection

A number of suppliers have developed short range radar systems capable of object detection at medium and close range. Depending on the specific orientation and systems integration, radar can be used to monitor a driver's blind spot, control speed, and anticipate accidents. Simple radar warning systems are available from large truck suppliers such as Delphi and Eaton. According to manufacturer's product specifications, the Eaton EVT-300 processes data from two antennae and the vehicle's engine to determine range, velocity and azimuth on up to 20 objects at a range of 350 feet. Car supplier Valeo is currently developing a blind spot detection system for a North American auto maker, expected to be in MY 2006 vehicles.[197]

In more sophisticated deployments, short range radar is integrated with a vehicle's throttle and braking systems in technology known as adaptive or active cruise control. The radar sensors allow the vehicle to automatically maintain a driver-determined following distance—instead of simply a steady speed. Adaptive cruise control may present a significant safety benefit in commercial trucks, which are especially dangerous when a tired operator engages a conventional cruise control system. Senator Frank Lautenberg recently wrote to Transportation Secretary Norman Mineta, requesting information on the steps taken by NHTSA and the Federal Motor Carrier Safety Administration (FMCSA) to investigate innovative vehicle technologies like adaptive cruise control that might mitigate some of the hazards posed by commercial trucks and tired truckers.[198]

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[197] *Valeo Raytheon Systems wins first Blind Spot Detection system contract*, Press release, Valeo Raytheon Systems, May 3, 2004

[198] Letter from Sen. Lautenberg to Secretary Mineta, December 7, 2005

In even more advanced configurations, radar systems are being designed by Bosch and others as part of a pre-crash sensing technology that can anticipate a crash and in the fractions of a second before impact communicate with other accident mitigation devices.[199] This system can optimize/trigger airbag deployment (according to accident severity and passenger type), actuate belt pretensioners, or apply brakes.

Lane Departure and Lane Keeping

Supplier Valeo SA has developed an optical lane-departure warning system that monitors lane markers and alerts the driver if the vehicle veers outside the lane of travel prior to a lane-change signal being activated. The system is offered for the first time as standard equipment on the 2005 Infinity FX45 sport wagon.

Toyota[200] and Honda[201] offer a similar warning system on vehicles sold only in Japan. Ford, GM and DaimlerChrysler have begun testing their own versions of lane-departure warning systems.[202]

Lane detection monitors can be integrated with steering systems to augment drivers' input and maintain the lane of travel. Toyota offers such a lane keeping system that is active only when adaptive cruise control is enabled.

[199] Bosch precrash sensorics, http://www.bosch.com/content/language2/html/2323.htm
[200] "Lane –change warnings come to US," *Automotive News*, November 1, 2004
[201] "Safety first," *Autotmotive Industries,* September 2004
[202] "Lane –change warnings come to US," *Automotive News*, November 1, 2004

Sensors

Weight and Size Passenger Detection

As discussed previously, advanced airbags require some type of occupant detection system to communicate location, size and weight information in order to vary inflation behavior. Multiple types of occupant detection systems are being developed by suppliers, including linear variable differential transformer (LVDT) weight sensors,[203] piezoelectric weight sensors, bladder-type weight sensors, ultrasonic sensors, infrared imaging, and optical cameras.[204]

GM combines weight detection with size detection, based on the seat position, in the 2006 Buick Lucerne. The system communicates how far the seat is from the dashboard and can vary the inflation volume and geometry of the passenger-side airbag.[205] Ford will also introduce a seat-based size detection system on some MY 2006 vehicles.[206]

Driver Alertness Monitoring

Siemens VDO manufactures an optical driver-alertness monitor that can identify signs of drowsiness or loss of focus by detecting a driver's visual path and blink pattern.[207] The system can function in place of the lane-change signal as part of an integrated lane-departure monitor (i.e., if the driver appears alert and focused on the road,

[203] "Advanced Weight Sensing (AWS II), product specification sheet, Siemens VDO Automotive
[204] "New sensors mean safer airbags," Automotive News, November 1, 2004
[205] "The evolution of front airbags," Tara Mello, Edmunds.com, http://www.edmunds.com/ownership/safety/articles/45863/article.html
[206] Ibid
[207] Lane departure warning system with optional driver alertness detection, Siemens VDO Automotive, http://www.siemensvdo.com/default.aspx?menu=assistent

no lane-departure warning is issued when the vehicle drifts beyond lane markers), or can serve as a stand-alone alertness monitor.[208]

Lane-departure and driver-alertness monitoring offers the capability to significantly reduce the frequency of motor vehicle crashes (industry estimates put the number of US crashes involving lane-change error at 410,000 annually).[209] However, a more fundamental approach to the problem at hand—driver distraction—is called for as well.

Ironically, the promotional video used by Valeo to demonstrate its high-tech lane-departure warning system shows a driver becoming distracted while operating a high-tech keypad information panel in the center console.[210] One has to question the relationship this video presumes: ever more distracting driving environments will create the need for ever-more advanced driver-distraction countermeasures. On the contrary, the high frequency of distraction-induced crashes in the US may imply a need to *lessen* the auxiliary distractions within the driving environment, by simplifying controls and emphasizing the primary driving function. Some combination of both approaches—technological warning systems and a less distracting environment—may be the optimal solution.

Global Positioning System (GPS)

The two most commonly available automotive applications of GPS technology are interactive navigation systems and GM's OnStar ® telematics service. GPS

[208] Ibid
[209] "Lane –change warnings come to US," Automotive News, November 1, 2004
[210] Lane departure warning system with optional driver alertness detection, Siemens VDO Automotive, http://www.siemensvdo.com/default.aspx?menu=assistent

navigation systems, widely available in luxury cars, graphically depict real-time vehicle positioning data over a road map. The result is a video game-like representation of the vehicle traveling along its route, commonly displayed on a liquid crystal display (LCD) screen in the center console. GPS navigation systems can perform a number of trip-planning and directional services, from calculating the shortest route to a destination to locating service stations and restaurants.

GPS navigation, in its current applications, is of questionable safety benefit. Though GPS navigation may replace printed maps it is unclear that the input and operation of such devices while driving is a less distracting means of navigation. However, if the GPS signal were enhanced it could be employed in a variety of cooperative safety systems, including pre-crash sensing, adaptive cruise control, lane-departure warning, lane guidance, curve speed warning, pedestrian crossing warning and stop sign warning, as noted by Nissan in their response to a NHTSA request for comments on the subject of next generation GPS for automotive safety.[211] While some of these applications appear to be an inappropriately complex use of GPS (pre-crash sensing, for one), others are perhaps more efficient than alternative schemes (such as radar-based adaptive cruise control).[212]

Furthermore, when GPS is coupled with a traditional communication network—as featured in GM's OnStar® service—the technology can function in an important safety capacity. OnStar® combines GPS and cellular communication in a comprehensive service that can remotely unlock doors, locate a stolen vehicle, and most significantly, automatically notify emergency services in the event of crash. With the inclusion of

[211] Response to Request for Comments by Nissan North America, "Civilian Use of, and Requirements for, the Next Generation of GPS for Automotive Safety," NHTSA-2005-20936-7, May 31, 2005
[212] Ibid

advanced sensors, systems such as OnStar® will not only be able to notify emergency responders a crash has taken place, but also communicate crash-specific details such as severity and passenger type. GM has scheduled OnStar to become standard on all MY 2008 vehicles, though a fee-based subscription is required after one year of purchase.[213]

GPS locating systems such as OnStar® are not without controversy, and have caused some to worry about privacy invasions. Privacy issues are addressed in more detail for electronic data recorders, discussed below.

Event Data Recorders

On-board electronic data recorders (EDRs) are a necessary tool of the aviation industry, where they are commonly referred to as "black boxes." EDRs are also becoming a common, though less well known, feature of new cars and trucks. For instance, GM installs EDRs on every new vehicle, and has done so since 2000.[214]

First developed in the 1970s as a post-crash data recorder to aid safety engineers in airbag deign, EDRs have since evolved to record pre-crash data as well.[215] In addition to providing invaluable data (and inexpensive, compared to manual crash investigations) for post-crash researchers, EDRs can communicate with telematic services like OnStar® to provide detailed crash information immediately following the event.

NHTSA has proposed standardizing the data stored by EDRs for manufacturers who choose to install them.[216] Even though NHTSA is not proposing mandatory installation of EDR devices, public opposition (on privacy grounds) to the government's

[213] Response to Request for Comments by OnStar "Civilian Use of, and Requirements for, the Next Generation of GPS for Automotive Safety," NHTSA-2005-20936-3, May 19, 2005
[214] "Racing pushes technology to forefront," Automotive News, November 15, 2004
[215] Ibid
[216] Notice of Proposed Rulemaking, NHTSA-2004-18029, 49 CFR Part 563

endorsement of the technology has peppered the NHTSA docket.[217] However, privacy concerns can be addressed with protective laws guarding against possible misuse of EDR data. Additionally, NHTSA has a long history of protecting sensitive information, such as is contained in national databases of fatal and non-fatal traffic accidents.

Biometrics

Biometric technology has been adapted to automotive applications in fingerprint ignition systems. One commercially available model prevents the car from being started without a registered fingerprint scan. The scanner can store up to 100 registered fingerprints.[218]

While the intent of biometric ignition locks is to prevent unauthorized drivers from operating the vehicle, the ability to know exactly who is in the driver's seat offers potential safety benefits. A single biometric scan could provide the equivalent function of size and weight sensors, provided the driver is registered. (If the driver's fingerprint weren't registered he couldn't start the car anyway.) The information is then communicated to the seat, mirrors and steering wheel, which adjust position, and the airbag, which anticipates the size and weight of the occupant. A biometric scanner could not, however, determine the location of the driver in the seat or assess an out of position condition.

Biometric locks may present some unusual drawbacks. Car thieves in Malaysia, undaunted by a biometric ignition lock on a Mercedes S-class, kidnapped a driver to start

[217] NHTSA Docket 2004-18029
[218] SecuOn Auto, product specifications, Raviraj Technologies, http://www.ravirajtech.com/fingerprint_car_lock_immobilizer_alarm_india.html

his car and then chopped off his index finger with a machete to fashion a more portable key.[219]

The viability of a biometric blood-alcohol detector is also being researched.[220] Such a device would function as a noninvasive ignition interlock and prevent drivers from starting a vehicle if their blood alcohol content (BAC) exceeds the legal limit.

Market Availability of Auto Safety Innovations

Table 3. Market Availability of Auto Safety Innovations

Tier 1: Commercially Available	*Tier 2: Emerging Technologies*	*Tier 3: R&D*
Improved footwell structure	Hydrophobic glass	Reversed belt geometry
Pop-up hood	Four-point belts	ITTR
Pedestrian-friendly front structure	Occupant size detection	External airbags
Seat belt pretensioners	Driver alertness monitor	GPS guidance
Seat belt retractors	Biometric locks	GPS lane warning
Integrated seat belt	Elastic seat belt webbing	Biometric BAC monitor
Integrated child safety seat		All-weather headlights
Side impact airbag		
Lower extremity airbag		
Electronic stability control		
Roll stability control		
Occupant weight detection		
Seat position size detection		
Crash anticipation		
Electronic data recorders		
Active headrests		
Blind spot warning		
Lane departure/Lane Keeping		
Strong roof structure		
Adaptive cruise control		
Adaptive headlights		
Brake assist		
Head-up display		
Lower extremity airbags		
Seat belt use reminders		

[219] "Malaysia car thieves steal finger," Jonathan Kent, BBC News, March 31, 2005
[220] "Wilson announces Justice funds for law enforcement alcohol screening technology," press release from Congresswoman Heather Wilson, January 12, 2005

Auto Safety Technology Discussion

Next Generation Safety Advances are Integrative

The previous review of auto safety innovations forecasts a changing technological landscape with a new emphasis on dynamic response and integrated systems. Accordingly, the greatest advances in auto safety in the 5-10 year horizon will be due to the integration of passive and active safety technology.

All actors in the auto safety arena—government, manufacturers, suppliers, insurance companies, consumer groups—should concentrate less on the distinction between technology that avoids a crash and technology that mitigates the effects of a crash. In fact, automotive technology will soon be able to *anticipate* an inevitable crash, tailor the crash protection in response, and notify emergency services.

A synergistic integration has the potential to deliver more lifesaving benefits than the sum of the component parts. Consider the following hypothetical scenario: a vehicle begins to lose control around a slippery turn. A lane-departure warning alerts the driver who initiates an evasive maneuver. The ESC system senses the evasive maneuver and actuates TSC and ABS systems to help the driver maintain the direction of travel. A mechanical pretensioner tightens seatbelts. The driver is able to avoid an oncoming car but not a guardrail. The collision is anticipated by a pre-crash sensor, which activates brake-assist, fires pyrotechnic belt pretensioners and triggers advanced airbags which know how large and heavy the front seat occupants are by communicating with size and weight sensors. After impact, digressive force retractors prevent belt-induced injury to the front occupants.

As a result of the integrated safety systems, a potentially more dangerous collision with an oncoming car has been avoided, and the collision that does occur is at a lower speed due to the electronically-assisted braking. Airbag deployment is optimized by pre-crash sensing and occupant size and weight detection.

The implications of such a holistic approach to auto safety extend to the archetypal Haddon matrix. Developed by the first NHTSA administrator, Dr. William Haddon, the matrix provides a template for categorizing the phases and factors relevant to auto safety. The Haddon matrix is still regarded as a paradigm by NHTSA, industry, and consumer groups. Table 4 illustrates the Haddon matrix, crash factors, and corresponding safety technologies.

Table 4

		Factors		
		Human	**Vehicle**	**Environment**
Phases	**Pre-Crash**	Distraction, Alcohol, Steering, Braking	RSC, TSC, ABS, Lane-departure, Mechanical pretensioners, Occupant detection	Road condition, weather
	Crash	Seat belt use	Airbag, Pyrotechnic pretensioners, Seat belts, Structure	Location, roadway objects
	Post-Crash	Alert emergency responders	Fire suppression, EDR, OnStar	Ambulance, hospital

Table 4. Haddon Matrix

Comparing the scenario described above to the Haddon matrix, it appears a new crash phase—crash anticipation—has been carved out between the pre-crash and crash phases. Based on this observation, a revised Haddon matrix is presented in table 5.

Table 5

		Factors		
		Human	**Vehicle**	**Environment**
Phases	**Pre-Crash**	Distraction, Alcohol, Steering, Braking	RSC,ESC, Lane-departure, Mechanical pretensioners, Occupant detection	Road condition, Weather
	Crash-Anticipation	*Braking*	*Pre-crash sensing, brake-assist*	*Roadway objects*
	Crash	Seat belt use	Airbag, pyrotechnic pretensioners, Seat belts, Structure	Roadway objects, Location
	Post-Crash	Alert emergency responders	Fire suppression, EDR, OnStar	Ambulance, hospital

Table 5. Haddon Matrix (Revised)

NHTSA is Not Technology Forcing

The auto safety technologies being researched or developed by manufacturers, suppliers, inventors and entrepreneurs—that NHTSA has not anticipated—are evidence of the slow governmental response to innovation. Causes for this lag are structural and political.

As exemplified earlier in the discussion of NHTSA's role in advanced airbag rulemaking, agency attempts to gauge technological potential have been limited to information requests sent to major manufacturers. The direction of these information requests is curious in light of the fact that many modern auto safety technologies are developed at the supplier level and then applied by manufacturers (or collaboratively developed by suppliers and manufacturers). If NHTSA wanted to fully understand the domain of technological knowledge encompassing auto safety they would solicit suppliers as well.

Additionally, the gap between laboratory research and on-road performance data hamstrings NHTSA's ability to monitor the effectiveness of emerging technology that consumers purchase as optional equipment or devices that are offered only on luxury models. NHTSA is often late to mandate life-saving technologies. Such is the case with Electronic Stability Control, whose safety potential has already been documented in numerous and significant ways by independent studies and NHTSA's own reports. Moreover, NHTSA has acted in ways totally ignorant of the industry's technological potential, such as during the 2000 advanced airbag rulemaking, when it went against decades of airbag research by issuing a standard that rolled back test speeds and required decidedly un-advanced airbag systems.

The National Highway Traffic Safety Administration does not issue technology forcing standards. At most, NHTSA's mandates schedule the diffusion of well-established technology. The agency must improve its data collection, crash investigation, and research programs in order to more swiftly and proactively respond to motor vehicle safety needs in light of emerging technology.

NCAP Must Address Active Safety

The New Car Assessment Program, which rates vehicles' crashworthiness on a one to five-star scale, serves a vital public safety function as an information source to consumers and an incentive program for manufacturers. Federal Motor Vehicle Safety Standards set a required minimum level of safety, but NCAP ratings encourage the industry to go further. As the importance of active and passive safety systems integration increases, NHTSA should adapt NCAP appropriately.

Currently, NCAP tests evaluate crashworthiness exclusively. Deficiencies in the test procedures and ratings structure have already been reported by the General

Accounting Office, including the inability to evaluate vehicle-to-vehicle compatibility, the compression of vehicle ratings in the four and five-star range, and the erosion of the NCAP test incentive as NHTSA increases the speeds of FMVSS crash standards.[221]

In addition to fixing these problems, the program should also develop some type of analysis and ratings for active safety systems. The purpose and benefits of an active safety component to NCAP are numerous. First, different active safety systems with the same name may perform quite differently. A consumer information program that can differentiate and comment on the effectiveness of the various types of pre-crash sensing, brake-assist and electronic stability control will aid car buyers to make knowledgeable purchases and encourage the proliferation of the most valuable technologies. In addition, NCAP tests can be designed to evaluate the integration of active and passive safety features (say, in a combination of an evasive maneuver and crash) to provide a more realistic and total analysis of the vehicle's overall safety performance. As part of its upcoming rollover prevention rulemaking (required by SAFETEA-LU), NHTSA will be forced to consider these benefits anyway, as the statute calls for a new rule that establishes "performance criteria to reduce rollovers consistent with stability-enhancing technology."

According to comments at the 2005 conference on the Enhanced Safety of Vehicles (ESV) by Adrian Hobbs, Secretary General of the European NCAP program, there is a role for NCAP to play in active safety, though applying any test to measure the effectiveness of a device such as ESC is complicated. Foremost, the test needs to consider whether it will encourage driving at the limit of ESC or rather an early ESC intervention. If an early ESC intervention is preferable for ratings purposes, will

[221] *Opportunities exist to enhance NHTSA's New Car Assessment Program*, GAO, April 2005

consumers agree? Also, how will manufacturers employ the use of an on-off control—and which position will most drivers default to?

Notwithstanding the difficulties of tailoring a successful active safety NCAP component, the EuroNCAP chief believes it is a priority. At the very least, much more work needs to be done. "There is a dearth of primary safety data worldwide," says Hobbs.[222]

Government Procurement

Proving the effectiveness of auto safety technology can be a significant hurdle in the development cycle, and the lack of good data can slow the introduction or standardization of life-saving innovations. Without a track record of success, manufacturers and regulators are hesitant to promote specific features. Experimental research can go only so far, and in the end is dependent on real-world data to corroborate findings. Active safety technology presents a particularly vexing problem of validity as discussed in the previous section.

In addition to testing concerns, the pace of technological diffusion from an optional product to standard equipment will be slow if the domestic fleet is used as a laboratory, considering that new cars and trucks make up less than ten percent of on-road vehicles. The low frequency of applicable cases studies (crashes involving vehicles with new safety technology) will be confounded by sampling errors inherent in national crash statistics models. These crash statistics models rely on probability samples taken from

[222] Comments of Adrian Hobbs, Secretary General of EuroNCAP, at the 19th annual international conference on the Enhanced Safety of Vehicles, June 8, 2005. Primary safety = active safety

police reports, and are part of the National Automotive Sampling System (NASS). Unlike NHTSA's database of fatal crashes—which is a total record of every fatal crash event—NASS samples a small portion of the millions of non-fatal traffic police accident reports to estimate an overall trend. While the NASS system is a useful tool for tracking general crash trends, it is an inappropriate means of evaluating emerging technology.

The error inherent in the NASS program illustrates just one shortcoming of attempting to substitute statistical sampling for closely monitored trials. For example, the standard error for crash estimates of 1,000 to 6,000 in the NASS-General Estimates System (NASS-GES) is 400 to 1,000. As table 6 shows, this means that the 95 % confidence interval for these estimates can be unhelpfully wide.

Crash Estimate	Crash Standard Error	95 % Confidence Interval
1,000	400	200 – 1800
5,000	900	3,200 – 6,800
6,000	1,000	4,000 – 8,000

Table 6: Crash sampling estimates and errors. Data adapted from Appendix C: GES Technical Notes, *Traffic Safety Facts 2004*, NHTSA

Accordingly, assessments of technological effectiveness can be frustrated by imprecise statistical data for features that lack widespread market penetration and thus are involved in fewer crashes. This problem is partly to blame for NHTSA's slow pace in ESC evaluation, even though ESC has been commercially available since 1995.[223] While NHTSA has offered a preliminary report on the effectiveness of the technology, the agency counsels that "We will feel more confident about the overall effectiveness of ESC when we have enough data on a more representative cross-section of the fleet including

[223] *Current Analysis of the Accident Statistics: Mercedes Passenger Cars Get Into Fewer Accidents*, Mercedes Benz, November 26, 2002

non-luxury vehicles and a wider variety of manufacturers. That is likely to take at least another year or two."[224]

To more swiftly and accurately evaluate the real-world performance of auto safety innovations, a dedicated fleet of vehicles, equipped with new features, needs to be put on the road and monitored. A cooperative program between the General Services Administration (GSA), purchaser of 60,000 civilian vehicles per year, and NHTSA, could accomplish such a task. The error inherent in extrapolating crash trends from an experimental fleet of vehicles will be much smaller than working backwards from NASS samples. Moreover, equipping procured vehicles with electronic data recorders would add a wealth of crash-related data not available from police accident reports.

GSA and NHTSA have worked together before, purchasing 5,000 airbag-equipped Ford Tempos in 1984, years before the airbag was a mandatory feature in cars. Results from this fleet: 100 crashes, 1 death (in a collision with a heavy truck), verified the on-road safety benefit of airbags and bolstered the argument that they be standard for all passenger vehicles.[225] A similar program between NHTSA and state governments or the Department of Defense could be envisioned as well.

The procurement process is not perfect, however, and is tailored to large producers. Gerald Carmen, former GSA Administrator, noted at a procurement conference in 1988 that, "What we miss in the procurement process is the middle-sized vendor, the middle-sized manufacturer, the people who are really innovative and creative,

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[224] *Preliminary Results Analyzing the Effectiveness of Electronic Stability Control (ESC) Systems*, Evaluation Note, DOT HS 809 790, September 2004.

[225] Remarks of Gerald Carmen, former GSA Administrator, from the Proceedings of a National Conference on the Uses of Government Procurement Leverage to Benefit Taxpayers, Consumers and the Environment, May 23-24, Washington DC , sponsored by the Center for Study of Responsive Law, 1988

the people who probably designed the airbag, the safety glass and the high level tail-light."[226]

Even if government procurement cannot stimulate the most inventive agents, it can still provide an invaluable source of data for emerging auto safety technologies. The General Services Administration, at the behest of NHTSA, should be actively purchasing vehicles with optional safety equipment—listed in table 3 under the heading *commercially available*. These experimental safety fleets should be monitored by NHTSA and the resultant data analyzed in the overall context of a performance assessment of market-available auto safety innovations.

The Auto Insurers

According to Keith Bradsher, former Detroit bureau chief for the *New York Times*, the manner by which insurers price liability coverage has been a "terrible lost opportunity over the last quarter of a century," from a public safety perspective.[227] Insurance companies for the most part have resisted adjusting liability rates by make and model to reflect potential liabilities, a practice that has disguised costly and dangerous externalities.

In the 1970's, this practice tended to favor the less affluent, who still owned the "older land barges of the used-car market."[228] Adjusting liability rates by model would have meant "raising premiums for the less affluent and lowering them for the affluent,"

[226] Ibid
[227] *High and Mighty: The Dangerous Rise of the SUV*, Keith Bradsher, Public Affairs publishers, 2002, p. 218
[228] Ibid, p. 211

who were purchasing new, smaller cars.[229] By the 1990's, however, affluent consumers tended to buy larger vehicles, especially SUVs.

The insurance industry's own risk assessment arms, the Insurance Institute for Highway Safety and the Highway Loss Data Institute, began to document the increasing damage inflicted by SUVs in the last decade. In 1994, HLDI completed a study which found that property damage from accidents involving large SUVs were 72 percent greater than for average cars, even controlling for other factors.[230] Yet insurers remained generally indifferent to SUV loss or car loss. Insurance premiums remained relatively steady from one model to the next, as the industry feared that higher SUV rates would anger affluent owners, who were typically multiple-policy purchasers.

Bradsher reports that Progressive, then a mid-size insurance company insuring drivers with the worst records, began adjusting by model in the late 80's, but not until 1997 did a major insurer (Farmers) begin linking premium rates to model type.[231] Farmers rate adjusting experiment was short lived, and other major insurers who followed the example did so on a limited basis—with rate differentials that did not match actual variations in claims. As of 2002, Nationwide varied premiums by plus or minus 10 percent, and Allstate varied by plus or minus 15 percent, not even close to the 72 percent difference that the 1994 HLDI study found.[232]

State Farm continues to resist any adjustment by model. Bradsher reports that a State Farm actuary believes SUVs save money for insurers by killing other motorists who

[229] Ibid, p. 218
[230] Ibid, p. 212
[231] Ibid, p. 214
[232] Ibid, p. 219

might live through a crash with a smaller vehicle. "Serious injuries produce larger legal settlements than deaths."[233]

But public sentiment appears to be on the side of rate adjustment, and those familiar with the industry say that insurers are calculating premiums more specifically than in the past. However, the low coverage limits for auto insurance policies reduce insurers' incentives to adjust premiums in a manner that ever reflects the total cost of operating the vehicle. For instance, while NHTSA estimates that the economic cost of severe injuries due to motor vehicle crashes is more than $1 million per patient,[234] medical, liability, and uninsured motorist payments are typically capped at $100,000 or $300,000. Because auto insurers are not liable for the true extent of economic loss from motor vehicle crashes, they are not encouraged to convey these liabilities in the form of representatively calculated premiums. Carl Nash, Ph.D., former NHTSA executive and currently Adjunct Professor of Engineering at the National Crash Analysis Center at George Washington University, proposes a supplemental insurance scheme to cover these additional costs.

Dr. Nash's proposal, which he calls Catastrophic Automotive Crash Injury Insurance (CACII), would have high deductibles (at least $25,000) and high payment limits (at least $10 million), and would reduce payments for drivers proven to have been operating under the influence of alcohol and occupants not using seat belts.[235] Nash estimates the cost for the first 10 years of CACII coverage at the time a new vehicle is

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[233] Ibid, p. 215
[234] *The economic impact of motor vehicle crashes 2000*, National Highway Traffic Safety Administration, 2000, p. 62
[235] *A market approach to motor vehicle safety...that also addresses tort reform*, Nash, C.E., 2005, available from author

sold would be "no more than $500, including profit, for a safe vehicle."[236] Nash defines a safe vehicle as one that weighs at least 2,800 pounds, has an effective belt use reminder, a strong roof, electronic stability control, and seat belt and side curtain airbags triggered by rollover sensors. CACII rates for older and more dangerous vehicles would be adjusted to reflect their safety performance record. The CACII plan attempts to conceptualize the principle that, "Insurance premiums should, in fact, reflect the actual crash injury cost experience and expectation for a vehicle."[237]

In addition to catastrophic insurance coverage, auto insurers might investigate the possibility of incentives or premium adjustments for a host of emerging auto safety technologies (listed in table 3). Insurers offered just such a discount when airbags first became commercially available, but resist doing so today.

The industry can also provide NHTSA with data to help speed the identification of possible safety defects. According to a 2001 NHTSA study, insurance companies' subrogation data and certain insurers' claims databases could be used to serve as a type of early warning system for defective parts.[238]

Fundamentally, the auto insurance industry should not lose sight of its historical role in loss prevention[239] or its ethical duty to honestly assess motorists' risks. Any effort by insurers to hide the dangers of particular vehicle models betrays a fiduciary responsibility to their policyholders.

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[236] Ibid
[237] Ibid
[238] *TREAD ACT Section 3(d) Insurance Study*, NHTSA, 2001
[239] *Loss prevention and the insurance function*, Nader, R., Suffolk University Law Review, Vol. XXI No. 3, 1987, pp. 679-689

Standards Setting and Harmonization

Before safety standards were issued by NHTSA, a patchwork of auto industry-sponsored technical standards, including those relating to safety, were written by professional societies, most importantly the Society of Automotive Engineers. In fact some of the original Federal Motor Vehicle Safety Standards were directly adapted from SAE technical standards, equating the first-ever federal safety standards with industry benchmarks.

Technical standards may serve three purposes: (1) to establish a minimum level of performance or quality, (2) to facilitate compatibility or reproducibility, and (3) to define the areas or methods of competition within an industry. As an issuer of safety standards, NHTSA operates almost solely with the first objective in mind. As an agent of industry,[240] SAE's goals are absorbed in the latter two functions.

The dichotomy of voluntary technical standards set by industry and imposed safety standards set by regulatory bodies is important to consider as the standardization process is subsumed within the all-encompassing sphere of globalization. As fewer global manufacturers wall off larger sectors of the economy and increase their geographic reach they aid their growth by establishing one common technical standard for component parts, assemblies and protocols. The process is known as harmonization.

Encouraged by large manufacturers, NHTSA has adopted a protocol for considering international vehicle standards. The rule concerning harmonization declares that NHTSA will focus its harmonization activities only on foreign vehicle safety

[240] See chapter 4

standards that "require significantly higher levels of safety performance than the counterpart US standards."[241]

Reality is more complicated, as in the case of headlights. European headlights are designed to output more light than American headlights and might be considered safer as a result. But European lights are also shaped in a pattern than directs most of the light toward the ground. Henry Jasny of Advocates for Auto Safety points out that, "This is fine in Europe where overhead highway signage is independently lit, however it is unsafe in the US where overhead signage is largely unlit signs with retroreflective tape that requires light from vehicle headlights in order to function properly and be seen by the driver."[242]

The headlight example illustrates the difficulty and subtlety of comparing similar safety standards and underscores the need for safety advocates to be watchful of the process. The harmonization process is also considerably more involved than NHTSA's own review and adoption of foreign standards. The goal of automotive harmonization is the global technical regulation (GTR), with which manufacturers the world over are supposed to comply, and which become the legal trade standard under World Trade Organization (WTO) rules. The first GTR, relating to door latches, was signed in November of 2005 in Geneva.[243]

The agreement that binds nations to the GTR was reached in 1998 at the United Nations and the body that considers their adoption is the World Forum for Harmonization of Vehicle Regulations (Working Party 29), a working party of the United Nations Economic Commission for Europe (UNECE). According to UN documents, WP.29

[241] 49 CFR Part 553, NHTSA-98-3815
[242] Email from Henry Jasny, Advocates for Auto Safety, June 14, 2005
[243] "Global auto-safety standard OK'd," Jayne O'Donnel, *USA Today*, November 16, 2004

regulations are intended to (1) improve vehicle safety, (2) protect the environment, (3) promote energy efficiency and (4) increase anti-theft performance.[244]

Unlike NHTSA, which informs the general public of any proposed rules and invites all comments, only registered parties may participate in WP.29 affairs. Non-governmental organizations, including consumer advocates, may participate so long as they are an NGO with consultative status to the United Nations Economic and Social Council (ECOSOC). NGO's without consultative status must be invited to participate by the UNECE secretariat or the concerned group's chairman.[245]

The bureaucracy and complexity involved in crafting a GTR causes some to worry that a harmonized standard will be immutable once passed. Joan Claybrook of Public Citizen is concerned that, "If a standard makes an improvement but doesn't go as far as we think it could, the likelihood it will be changed in the near future is zilch."[246]

Public Citizen notes that an array of laws (including the Administrative Procedure Act, the Freedom of Information Act, and the Government Sunshine Act) keep the US regulatory process "open", "consultative," and "democratic."[247] By contrast, harmonization proceedings typically lack transparency and participation from a "diversity of stakeholders."[248] Even if parties with a variety of interests are permitted to attend harmonization proceedings, the requirements of international travel are prohibitive for most academics, public interest groups and citizens.[249] Accordingly, most harmonization proceedings are dominated by industry, leading some to question the "appropriateness

[244] Frequently asked questions regarding WP.29, http://www.unece.org/trans/main/welcwp29.htm
[245] Ibid
[246] "US agrees to door-latch standard," Dee-Ann Durbin, *Associated Press,* November 16, 2004
[247] *Harmonization 2004 Guidebook*, Public Citizen
[248] Ibid
[249] Ibid

and legitimacy of relying on these institutions to set global policy, especially in sensitive consumer, environmental and worker-related areas."[250]

In specific regard to technological innovation, Henry Jasny foresees little overall effect from the harmonization process, though he notes that "if a technology had to be adopted internationally, manufacturers might be more wary about how they introduce new technology into production models."[251]

[250] Ibid
[251] Email from Henry Jasny, Advocates for Auto Safety, June 14, 2005

8. Technology to Improve Passenger Vehicle Fuel Efficiency

Technology Review, a publication of MIT, did not mince words in 2002 when it reported on the prospect of high-mileage passenger vehicles. "[I]f it chose to, Detroit could manufacture a 40-mpg SUV by the end of the decade."[252] The magazine details the viability of a gasoline internal combustion engine to power 46 mpg cars and 40 mpg SUVs, as reported in a 2001 study of proven fuel efficient technologies commissioned by the American Council for an Energy-Efficient Economy (ACEEE).[253]

The ACEEE study cited by *Technology Review* highlights similar fuel saving technologies investigated by the National Academies of Science in their 2002 report *Effectiveness and Impact of Corporate Average Fuel Economy (CAFE) Standards*, and a more recent study by Argonne National Laboratory, *Examining the Potential for Voluntary Fuel Economy Standards in the United States and Canada*. These studies are thorough and expert evaluations and a comparison of them reveals many of the opportunities and pitfalls related to the improvement of passenger vehicle fuel economy by means of efficiency gains.

The NAS study evaluated technology that is currently known and available to manufacturers ('production intent') and technology that is beyond the research phase but still in development ('emerging technology'). NAS then categorized the technology according to its application in the engine, transmission, or vehicle system. The ANL study more closely analyzed weight reduction (investigating certain steel alloy and

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[252] *Why not a 40-mpg SUV?*, Technology Review, November 2002
[253] *Technical Options for Improving the Fuel Economy of U.S. Cars and Light Trucks by 2010-2015*, DeCicco, J., An, F., Ross, M. American Council for an Energy Efficient Economy, April 2001

aluminum body structures) and electric control (specifying more electronic accessories such as electric pumps and throttle control).

ANL and ACEEE also evaluate the viability of direct injection engines (only mentioned by NAS as an R&D item of promise) and hybridization (which NAS evaluates separately from all other technology). Hydrogen fuel cells are considered not commercially viable in the near term by any study.

Regardless of the optimal engine/vehicle design, on one issue the scientific community agrees: the opportunity to increase the efficiency of passenger vehicles exists today—even with traditional gasoline internal combustion engines. Table 7 summarizes many of the creative and technologically innovative means engineers have at their disposal to increase car and truck efficiency.

Table 7. Market Availability of Fuel Efficiency Innovations		
Tier 1: Commercially Available	*Tier 2: Emerging Technologies*	*Tier 3: R&D*
Engine Improvements		
Engine friction reduction	Intake valve throttling	Hydrogen internal combustion
Low-friction lubricants	Camless valve actuation	Hydrogen fuel cell
Multivalve overhead camshaft (2-V vs. 4-V)	Variable compression ratio	
Variable valve timing (VVT)	Gasoline direct injection (GDI)	
Variable valve lift and timing (VVLT)	Homogeneous Charge Compression Ignition (HCCI)	
Cylinder deactivation		
Engine accessory improvement		
Engine supercharging and downsizing		
Natural gas combustion engine		
Transmission Improvements		
6/7/8 speed automatic transmission	Automatic shift/manual transmission (AST/AMT)	
Continuously variable transmission (CVT)	Advanced CVT's – higher torque	
Automatic transmission w/ aggressive shift logic		
Vehicle Improvements		
Aerodynamic drag reduction	42-V electrical systems	
Improved rolling resistance	Integrated starter/generator (no idle)	
Materials weight reduction	Electric power steering	
Gasoline hybrid-electric vehicle	Electric pumps	
Diesel hybrid electric vehicle	Advanced materials weight reduction	
	Plug-in hybrid	

Consumer Demand and Corporate Offerings

The success of the Toyota Prius (which averages about 44 miles per gallon) proves American customers value fuel economy. Sales of the Prius in April 2005 were 196% higher compared to April of the previous year.[254] In fact, American carmakers are now rushing to license or develop their own hybrid drivetrains. Detroit must play catch-

[254] Toyota USA Reports April 2005 Best-Ever Sales Month, Press Release, Toyota Motor Corporation, May 3, 2005

up to the Japanese, who enjoy a competitive advantage in hybrid technology by at least one vehicle generation. Some domestic automakers now admit the error of their ways. "Do we wish we had them? Of course we do," bemoans GM's Bob Lutz.[255]

But the story of the Prius, and of Toyota's overall product development, is more complicated. While any Prius that Toyota sells improves their bottom line, Toyota is eyeing the Detroit-dominated large truck and SUV segment as the last hurdle in the race to overtake GM as the world's largest automaker. After waiting decades to join the fray, Toyota is finally game to challenge the Big Three in the large truck market. The large truck market includes such well-known models as the Dodge Ram, the Chevrolet Silverado and the Ford F-Series pickup, which is the best selling vehicle of any type, car or truck. Truck buyers are also notoriously loyal, much more so than car buyers, and much less willing to purchase a foreign vehicle for a traditionally American vehicle task, making Toyota's competition disadvantaged.

Yet the sales performance of Toyota trucks indicates the Big Three might have some worrying to do. Comparing the same sales periods (April 2004 and April 2005), Toyota sold 10,932 full-size Tundras,[256] a 21% increase, compared to a 4% increase for Dodge Rams, a 2% increase for Ford F-Series trucks and a 12% decrease for the Chevrolet Silverado. In the large SUV category, Toyota weathered a tough April 2005 at least as well or better than its American rivals, seeing a 10% sales decline for Sequoias, compared to a 9% drop for the Dodge Durango, 20% less Ford Expeditions and 36% less Chevy Tahoes. So in the same month that Toyota touted its record Prius sales, it sold almost an equal number of full size Tundras, in addition to 4,000 full-size Sequoias.

255 *The End of Detroit*, Micheline Maynard, Currency Doubleday, p. 286

256 The Tundra is a new model and sales figures will not reflect a mature market, but they are useful to gauge consumer interest nonetheless.

	Sales April 2005	Sales April 2004	Change (%)
Toyota Prius	11,345	3,684	196.5
Full size pickup			
Toyota Tundra	10,932	8,672	33.9
Ford F series	71,367	70,166	1.7
Dodge Ram	35,986	33,284	-4
Chevrolet Silverado	55,075	60,554	-12.4
Full size SUV			
Toyota Sequoia	4,039	4,319	-12
Ford Expedition	9,460	11,831	-20
Dodge Durango*	8,626	9,104	-9
Chevrolet Tahoe	10,134	15,357	-36.5

Table 8. Compiled from Toyota, GM, Ford, Daimler-Chrysler sales data.
* Durango was initially a mid-size SUV but was redesigned and upsized for MY 05

Toyota has brightened its corporate image in the gleam of the socially responsible Prius, but this marketing and sales success belies the more cutthroat nature of the auto industry, which hungers for any available profit. Kevin Wilson, executive editor of *Automotive News*, commented in May 2005 that the Prius is "A free pass for Sequoias," and noted that, "Perspective requires one to look farther down the road than the bottom line on the latest quarterly sales report."[257]

Consider the math: the four-wheel drive Toyota Sequoia is rated 15 mpg in the city and 17 mpg on the highway by the EPA. Driving 12,000 miles in one year will burn 890 gallons of gasoline, about 450 gallons more than the legislated 27.5 mpg average for fleets of passenger cars. The extra 450 gallons burned will release an extra 8,775 lb of carbon dioxide compared to a car that averages 27.5 mpg. In order to absorb this much extra carbon dioxide one would need to plant at least two dozen sequoia trees.[258]

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[257] "A free pass for Sequoias", Kevin Wilson, *Automotive News*, May 2, 2005

[258] Carbon dioxide sequestration is complicated and depends on many factors including tree type, size, age, soil composition and climate. A 1999 study estimated that a large (48 ft tall, 40 foot spread) tree provides a

Further, because the Toyota Sequoia is a 4,800 lb SUV, it has a higher propensity to rollover and is significantly more deadly than a lighter, smaller, and lower car in vehicle-to-vehicle crashes.[259]

By September 2005, hybrid vehicles (Toyota Prius and Lexus 400h) accounted for 7.3 percent of all of Toyota's sales, compared to 5.4 percent for the Tundra and Seqouia.[260] While this trend may be indicative of an overall slide in the popularity of large trucks, it's too early to discern a long term corporate strategy on behalf of Toyota, or any major automaker, to fully invest itself in fuel saving designs while moving away from the largest and most inefficient vehicles. Even Honda, historically an innovator of small and efficient vehicles, entered the pickup truck market for the first time ever in 2005 with the unconventional mid-size Ridgeline.[261]

On the opposite end of the spectrum lies perhaps the smallest and most forward-thinking car company, Hypercar Inc. The Hypercar concept was initiated by Amory Lovins's Rocky Mountain Institute to investigate the technological potential of building an efficient vehicle without compromising performance, comfort, or safety. In 1994, the Hypercar Center was founded to "place the concept in the public domain and share it conspicuously with some two dozen major car companies."[262] By putting the concept in the public domain, the Rocky Mountain Institute aimed to prevent private licensing. In

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net carbon dioxide benefit of 320 lbs/yr. *Tree guidelines for San Joaquin Valley Communities*, McPherson, E.G., Simpson, R.J., Peper, P.J., Xiao, Q., Western Center for Urban Forest Research, USDA Forest Service Pacific Southwest Research Station, 1999.

[259] Although the 2004 Sequoia received 5-star ratings in NHTSA frontal crash tests, its higher center of gravity, stiff frame construction, and heavy curb weight pose dangers to its occupants and other motorists. See *High and Mighty: The Dangerous Rise of the SUV*, Keith Bradsher, Public Affairs publishers, 2002

[260] "Toyota announces 2005 best-ever third quarter and September sales," news release, Toyota Motor Sales, October 3, 2005

[261] "Honda Ridgeline truck unveiled at 2005 North American International Auto Show," news release Honda Worldwide, January 10, 2005

[262] The Hypercar Concept, http://www.hypercar.com/

1999, Hypercar Inc., a for-profit company, was founded to develop the underlying technologies and "speed the industry's transition by exerting direct competitive pressure."[263]

The Hypercar vehicle concept relies on a low weight, low drag composite body, electronic control systems, and high efficiency powertrains (first hybrid-electric, eventually hydrogen fuel cell). Lovins follows quite a different paradigm than the major automakers, and sets lofty goals. According to the Hypercar website, Lovins hopes to achieve a "3 to 5-fold improvement in fuel economy, equal or better performance, safety, amenity and affordability, compared to today's vehicles."[264] While Amory Lovins preference for hydrogen propulsion may not be consistent with most other independent transportation researchers, his aim to build an ultra-light yet safe passenger vehicle is noteworthy for its inventiveness and its departure from the trends of major automakers.

Corporate Average Fuel Economy Standards (CAFE)

The corporate average fuel economy (CAFE) program, enacted in 1975, first stimulated manufacturers to improve the efficiency of vehicle designs using advanced technology, then helped to encourage the production of more light trucks (which are held to a lower standard than passenger cars), and has now actually stagnated the overall fuel economy of the passenger vehicle fleet. The EPA has observed that while vehicle weight and acceleration has increased over the past two decades, fuel economy has remained

[263] Ibid
[264] Ibid

relatively constant.[265] This reveals the automakers' general response to CAFE standards, which has been to increase their production of light trucks and focus their engine research on specific power improvement, not gas mileage gains. Overall, today's engines deliver much more power per unit displacement than those of 1981, but they do not go farther on a gallon of gas.

The original CAFE law established two fleet-wide fuel economy averages for manufacturers: one for cars, set by Congress, and one for light trucks, set by NHTSA. Congress set the car average at 27.5 mpg, to be phased in by 1985. NHTSA very slowly bumped up the light truck standard, starting at 17.2 mpg and leveling out for a time at 20.7 mpg in 1997.[266] For CAFE purposes, a light truck was originally defined as a truck or truck derivative with gross vehicle weight (a vehicle loaded to its maximum capacity) below 6,000 pounds, and was subsequently increased to include trucks with gross vehicle weights up to 8,500 pounds in 1978.[267] Because SUVs and minivans have truck characteristics (SUVs are built on truck frames and minivans have flat loading areas), manufacturers are able to classify these vehicles as light trucks.

When CAFE laws were written in 1975, only 20 percent of light duty vehicles sold were light trucks.[268] Most light trucks were true pickups and were owned by farmers,

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[265] *Light Duty Automotive Technology and Fuel Economy Trends: 1975 Through 2005*, EPA, Office of Transportation and Air Quality

[266] *Automobile and Light Truck Fuel Economy: Is CAFE up to Standards?*, Robert Bamberger, Congressional Research Service, September 16, 2002

[267] *High and Mighty: The Dangerous Rise of the SUV*, Keith Bradsher, Public Affairs publishers, 2002, p. 29

[268] *Light Duty Automotive Technology and Fuel Economy Trends: 1975 Through 2005*, EPA, Office of Transportation and Air Quality

businesses, and motorists with legitimate hauling needs. Few had gross vehicle weights over 8,500 pounds.[269]

In the three decades since the enactment of CAFE standards, automakers have exploded their production of light trucks and taken advantage of the 8,500 lb ceiling. Today light trucks comprise 50 percent of vehicle new sales.[270] Many are SUVs, designed as highway bound people-movers, not off-road trucks, and some are certified by manufacturers with gross vehicle weights just above 8,500 lb, escaping all fuel economy standards.[271]

Table 9 lists some popular four-wheel drive SUVs and their respective fuel-efficiency. Because current EPA tests exaggerate on-road fuel economy performance, the agency recommends multiplying the city test value by 0.9 and the highway test value by 0.78 to calculate the actual gas mileage achieved in those driving conditions. To average the city and highway values, it was assumed that the city value would account for 63 percent of the average, as the EPA reports that 63 percent of driving is done in the city.

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[269] *High and Mighty: The Dangerous Rise of the SUV*, Keith Bradsher, Public Affairs publishers, 2002, p. 28

[270] *Light Duty Automotive Technology and Fuel Economy Trends: 1975 Through 2005*, EPA, Office of Transportation and Air Quality

[271] *High and Mighty: The Dangerous Rise of the SUV*, Keith Bradsher, Public Affairs publishers, 2002, p. 29; *Automobile and Light Truck Fuel Economy: Is CAFE up to Standards?*, Robert Bamberger, Congressional Research Service, September 16, 2002

4WD, 2006 MY SUV	EPA City	EPA Highway	Adj. City	Adj. Highway	Average MPG
Hummer H1					8-11 (est.)
Hummer H2					8-11 (est.)
Jeep Grand Cherokee	12	15	10.8	11.7	11.1
Dodge Durango	12	15	10.8	11.7	11.1
Chevrolet Tahoe 1500	14	18	12.6	14.0	13.1
Ford Expedition	14	17	12.6	13.3	12.8
Ford Explorer	14	20	12.6	15.6	13.6
Toyota Sequoia	15	17	13.5	13.3	13.4

Table 9. Data from EPA, fueleconomy.gov. Hummer H1 and H2 exceed 8,500 lb GVWR and are not subject to EPA testing.

As the light truck fraction of new passenger vehicle sales grew during the 1990's, the average gas mileage of the entire fleet slumped. Today the combined fuel economy of cars and trucks is 24.6 mpg, just under the 24.7 mpg of new cars and trucks sold in 1982.[272] A higher mix of light trucks is more inefficient—and more unsafe, because of the added dangers SUVs pose in rollover and vehicle-to-vehicle crashes.[273]

From 1994 to 2000, Congress froze CAFE standards. Even though NHTSA was authorized to increase the light truck standard under the 1975 CAFE law, successive appropriations bills passed by the House and Senate in the late 1990's prohibited the agency from using any funds to issue fuel economy rules.[274] The ban on CAFE rules was finally lifted in 2000, when an agreement was reached to replace the prohibitive appropriations rider with a provision that authorized the National Academy of Sciences to study the issue and recommend appropriate fuel economy standards.[275]

In 2003, two years following the issuance of the NAS report (which did not recommend a specific fuel economy target), NHTSA raised the light truck standard to

[272] *Light Duty Automotive Technology and Fuel Economy Trends: 1975 Through 2005*, EPA, Office of Transportation and Air Quality
[273] *High and Mighty: The Dangerous Rise of the SUV*, Keith Bradsher, Public Affairs publishers, 2002
[274] *Automobile and Light Truck Fuel Economy: Is CAFE up to Standards?* Robert Bamberger, Congressional Research Service, September 16, 2002
[275] Ibid

22.2 mpg, to be phased in by model year 2007. In 2005, NHTSA again proposed raising the light truck standard, and the way light trucks are classified—defining 6 size classes. The editors of *Automotive News* were quick to criticize the new standard, which they claimed "doesn't go far enough," and called the plan's aggregate impact on light truck fuel economy (24 mpg by 2011) "hardly a stretch."[276] In light of the many technologies available to automakers to increase the fuel economy of their vehicles, and the calculation by ACEEE that SUVs alone could reach 40 mpg by 2010, this opinion seems quite reasonable.

CAFE's Impact on Technology and Safety

Enemies of fuel economy regulation have charged that CAFE rules encourage automakers to manufacture lighter vehicles that are necessarily more unsafe than heavier models and cause higher traffic fatality rates. In a November 14, 2005, op-ed published in the *Wall Street Journal*, Sam Kazman of the Competitive Enterprise Institute claimed that there is a "documented trade-off between between fuel economy and vehicle crashworthiness—larger, heavier cars get fewer miles per gallon, but also have lower death rates."[277] The *Journal's* editorial page asserted a similar relationship and cited Kazman's Competitive Enterprise Institute, opining that "higher fuel-efficiency standards for cars would cost lives."[278]

The *Journal* and Kazman both rely on the National Academy of Sciences CAFE report to support their claims. The NAS report, in turn, performed a literature review on the subject. Rather than conducting original research, a majority of the panel agreed with

[276] "Truck CAFE plan is weak; makers must beef it up," *Automotive News*, August 29, 2005
[277] "CAFE is bad for your health," Sam Kazman, *Wall Street Journal*, November 14, 2005
[278] "No blood for oil," Editorial, *Wall Street Journal*, September 14, 2005

the principal findings of a 1997 study by NHTSA's Charles Kahane.[279] The Kahane study claimed that a 100 lb mass reduction in cars and light trucks in 1993 would result in 250 additional fatalities.[280] The NAS panel then extrapolated this effect based on the fact that cars were 700 lbs heavier on average in 1976 and light trucks were 300 lbs heavier. The report then estimates this weight reduction resulted in an additional 2,000 fatalities in 1993 that would not have occurred if vehicle weights had remained at 1976 levels.[281]

This finding was so controversial that two members of the panel, David Greene and Maryann Keller, issued an eight page "Dissent on Safety Isssues" as an appendix to the report. Greene and Keller write that the conclusions of the majority in the chapters pertaining to CAFE's effect on safety "are overly simplistic and at least partially incorrect."[282] Fundamentally, Greene and Keller take issue with the majority's decision to estimate a 2,000 fatality increase based on the Kahane work. As Greene and Keller point out, even a National Research Council panel that reviewed Kahane's work found that:

> The NHTSA analysts' most recent estimates of vehicle weight-safety relationships address many of the deficiencies of earlier research. Large uncertainties in the estimates remain, however, that make it impossible to use this analysis to predict with a reasonable degree of precision the societal risk of vehicle downsizing and downweighting.[283]

Greene and Keller state firmly, "There is no fundamental scientific reason why decreasing the mass of all highway vehicles must result in more injuries and fatalities."[284]

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[279] *Effectiveness and impact of Corporate Average Fuel Economy (CAFE) standards*, Transportation Research Board, National Research Council, 2002
[280] *Relationship between vehicle size and fatality risk in model year 1985-93 passenger cars and light trucks*, Kahane, C.J., NHTSA Technical Report, DOT HS 808 570, 1997
[281] *Effectiveness and impact of Corporate Average Fuel Economy (CAFE) standards*, Transportation Research Board, National Research Council, 2002
[282] Ibid
[283] Ibid
[284] Ibid

The "fuel economy/safety tradeoff" dispute arises because it is difficult to discern the specific effects fuel economy regulations have had on cars and light truck designs. The Kahane study, one of the most advanced and scientific, has noted limitations—including Kahane's inability to statistically separate size and weight and the presence of confounding factors (such as driver behavior) "capable of changing the study's conclusions."[285]

David Greene restudied the issue subsequent to the 2002 NAS report and testified before the House Committee on Science on February 9, 2005, that "the aggregate national traffic fatality and fuel economy statistics provide no support for the hypothesis that increasing fuel economy led to increased traffic fatalities over the period 1966 to 2002."[286] The Chairman of the Committee, Sherwood Boehlert (R-NY), asked five expert witnesses if they agreed with the following statement, "The only way to improve fuel economy through increased CAFE standards would be to make vehicles lighter and therefore less safe." Each expert, including Michael Stanton, lobbyist for the Alliance of Automobile Manufacturers, said no.[287]

As with any interdependent design variable, setting fuel economy levels will inherently cause tradeoffs. The most important point to consider is whether or not manufacturers can practically design vehicles that are highly efficient *and* safe.

The *Wall Street Journal*, the very paper whose editors think CAFE kills people, reported in a front page story on September 26, 2005, that the safety of passenger vehicles is dependent on more than a simplistic balance between weight and fuel

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[285] Ibid
[286] "Experts: Technology exists to raise fuel economy of cars and trucks without reducing safety," news release, House Committee on Science, February 9, 2005
[287] Ibid

economy, noting that, "New studies highlight how other factors—including a car's size, body design and advanced technology—can do much to counteract the weight issue."[288] Rob Chapman, judge of the *Automotive News* PACE Awards for Innovation, wrote in the October 17, 2005, issue of *Automotive News* that "many developments today promise greatly improved occupant protection and decreased vehicle weight."[289]

The developments that the *Journal* and Chapman refer to include the use of advanced materials, creative structural designs, and weight-saving technology. The UltraLight Steel Auto Body project demonstrated how to achieve 25 to 36 percent mass savings without incurring cost or safety penalties.[290] Jaguar and Audi employ aluminum chassis that save hundred of pounds without sacrificing strength or safety. Electronic braking systems save weight by eliminating hydraulics. In short, there are a multitude of technologies at the disposal of automakers to produce more efficient (even lighter) and safer vehicles.

As a final note, the cumulative health benefit of fuel economy standards as manifested in environmental improvements has been given little attention. For example, by lowering fuel consumption, CAFE decreases emissions that generate smog, which studies have shown may be linked to and exacerbate childhood asthma,[291] in addition to other diseases. The National Academy of Sciences ignores this type of analysis in their report on CAFE's effectiveness.

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[288] "How US shifted gears to find small cars can be safe, too," Karen Lundegaard, *Wall Street Journal*, September 26, 2005
[289] "Lighter vehicles are not unsafe," Rob Chapman, *Automotive News*, October 17, 2005
[290] *UltraLight Steel Auto Body (ULSAB) Final Engineering Report*, March 1998, http://www.autosteel.org/ulsab/ulsab_eng_rpt_index.htm
[291] "In young rhesus monkey smog shown to set up lungs for asthma," news release, National Institute of Environmental Health Science, National Institutes of Health, October 12, 2000

Research and Development: PNGV and FreedomCAR

Federal and state governments have "played an active role in the research and development (R&D) of advanced automotive technologies" since the mid-1970's.[292] As early as 1976, Congress authorized the Department of Energy to support electric and hybrid vehicle research.[293] By directly funding R&D, government can subsidize research that industry finds too risky and would otherwise ignore. MIT's report on government involvement in the innovation process characterizes the underlying theory.

> Private firms may underinvest in the development of new technology (from a societal point of view) because they are not able to capture all of the benefits resulting from such investments. This situation, often called the "appropriability problem," occurs because the knowledge which results from investments in technical development can usually be readily acquired by others who will compete away part of the benefits from the original developer. Basic research in particular suffers from this problem because its output is usually an advance in scientific or technological knowledge that can subsequently be used in applied research and commercial development by a wide and often unforeseeable range of firms. Moreover, new technical developments also tend to be highly uncertain in terms of results and utility. Thus, direct government support of this class of R&D is necessary to correct for underinvestments.[294]

Yet recent government R&D initiatives in advanced vehicle technology, especially fuel-efficient technology, have been plagued by organizational ineffectiveness and misplaced priorities. Two major programs by the Clinton and Bush administrations in particular have highlighted institutional missteps that should be avoided in any cooperative R&D agenda between government and the auto industry such as: (1) the dominance of OEM concerns over government and supplier influences, (2) diminished

[292] *Advanced automotive technology: Visions of a super-efficient family car*, Office of Technology Assessment, 1995, OTA-ETI-638
[293] Ibid
[294] *Government involvement in the innovation process: a contractor's report to the Office of Technology Assessment*, Center for Policy Alternatives, MIT, 1978, p. 14

competition among manufacturers, and (3) objectives that promote technological trajectories at odds with program goals.

PNGV

In February 1993, President Clinton announced a new initiative that would "help the [US auto] industry develop critical new technology that can all but eliminate the environmental hazards of automobile use and operate from domestically produced fuels and facilitate the development of a new generation of automobiles."[295] The Partnership for a New Generation of Vehicles (PNGV), as the program became known, established a cooperative partnership in advanced research and development between the Big Three domestic automakers and five federal agencies: Department of Commerce, Department of Energy, Department of Transportation, Environmental Protection Agency, and the National Science Foundation.[296] PNGV set a goal of producing an 80 mpg prototype vehicle within 10 years and, at the request of the Department of Commerce, established a standing committee at the National Research Council to conduct an annual review of the partnership.[297]

Rather than creating a new entity to oversee PNGV activity, existing programs were identified as PNGV-relevant by and subsumed within the structure.[298] Funding for the research classified as PNGV activities came from 12 sources, six House and six

[295] *Technology for America's Economic Growth: A new direction to build economic strength*, President William J. Clinton, February 22, 1993
[296] The Department of Defense and the National Aeronautics and Space Administration also participated on steering and technical teams, but provided no funding.
[297] *Results of US-industry partnership to develop a new generation of vehicles*, General Accounting Office, March 2000
[298] *The machine that could: PNGV, a government-industry partnership*, Robert Chapman, RAND, 1998, p. 51

Senate appropriations bills, and the sums were large.[299] According to the General Accounting Office, "federal research in support of the partnership totaled about $1.25 billion" from fiscal year 1995 through fiscal year 1999.[300] This funding flowed from federal agencies to automakers, national laboratories, universities, and others. While this structure permitted a quick start, "the downside of such an approach was the lack of a discretionary, central program budget."[301]

PNGV also lacked central authority. The Department of Commerce was designated to lead the technical and policy task force for government, while the auto industry assumed the technical leadership of the overall PNGV program.[302] The Commerce Department's PNGV Secretariat served as the administrative arm for the participating agencies, but lacked the ability to formally reallocate funds or emphasize specific program directives. The former director of the PNGV Secretariat reports that the "central technical management of PNGV was primarily effected by suasion."[303]

The domestic auto industry participated in PNGV through its cooperative research body, the US Council for Automotive Research (USCAR), comprised of the Big Three: GM, Ford, and Chrysler (later Daimler-Chrysler).[304] USCAR amplified the native oligopoly behavior of the automotive sector. Acting in many PNGV programs as a coherent body, the umbrella of USCAR limited direct competition between industry participants and reduced any individual manufacturer's incentive to attempt original

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[299] Ibid
[300] *Cooperative Research: Results of U.S.-Industry partnership to develop a new generation of vehicles*, GAO, March 2000
[301] *The machine that could: PNGV, a government-industry partnership*, Robert Chapman, RAND, 1998, p.51
[302] Ibid
[303] Ibid
[304] *The Partnership for a new generation of vehicles (PNGV)*, Congressional Research Service, February 28, 1996

research. Such collaboration, previously forbidden by anti-trust laws, was encouraged under PNGV. [305]

Suppliers were all but ignored at the outset of the partnership. The Congressional Research Service reports that no PNGV money was allocated for "creative R&D with suppliers" for fiscal years 1995 or 1996.[306]

With little governmental control, massive collaboration among the Big Three, and zero innovative influence from suppliers, all three automakers chose to invest in diesel technology to meet the 80 mpg target set for a prototype vehicle, as outlined in the PNGV plan.[307] The National Research Council reported in 2001 that "In maintaining its quest for a vehicle with fuel consumption of 1.25 gallons per 100 miles (80 mpg) the PNGV has continued its focus on the diesel engine as the primary energy converter for the vehicle."[308] The Big Three planned to incorporate a small diesel engine in a hybrid powertrain, the most viable near-term means of maximizing fuel economy. Yet diesel technology poses such significant emissions problems (of particulate matter (PM) and nitrogen oxides (NOx)) that the NRC warned "the challenges of meeting the new California Air Resources Board (CARB) and the U.S. Environmental Protection Agency Tier 2 emission standards are a major hurdle for the [diesel] engine even when used in an HEV power train."[309]

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[305] *Partnership for a new generation of vehicles: a decade of lost opportunity*, Amy Buckley, 2001, available from author

[306] *The Partnership for a new generation of vehicles (PNGV)*, Congressional Research Service, February 28, 1996

[307] *Results of US-industry partnership to develop a new generation of vehicles*, General Accounting Office, March 2000

[308] *Review of the research program for the partnership for a new generation of vehicles*, Seventh report, National Research Council, 2001

[309] Ibid

In fact, during the course of the program, EPA announced final regulations (Tier 2, to be phased in beginning in 2004) for average fleet NOx and PM emissions that were more stringent than the original PNGV targets.[310] It appeared that the futuristic vehicles President Clinton had promised would "all but eliminate the environmental hazards of automobile use" would themselves have to be retooled to meet the nation's emission standards.

Eight years after Clinton's initial unveiling, PNGV proved to be riddled with administrative and technical errors that undercut the program's intent to accelerate the production of marketable vehicles with radically improved environmental performance. A new Republican administration also began to criticize PNGV. Energy Secretary Spencer Abraham, former governor of Michigan, disapproved of the direction PNGV had taken, saying in April of 2001 that is was "inconsistent with where the market is headed and where the automakers are headed."[311]

The market, in fact, had already introduced hybrid vehicles—though not as a result from any PNGV-related research. Honda and Toyota, excluded from the partnership, debuted on their own mass-produced gasoline-electric vehicles for US purchase in 2000, just as PNGV diesel-hybrid prototypes were being introduced. Ford Motor Company even decided to buy hybrid transaxle components from a Japanese supplier (Aisin AW) for its gasoline-electric hybrid Escape SUV while the American automaker received federal aid to develop domestic hybrid technology.[312]

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[310] PNGV targets in 1997 were 0.2 g/mile NOx and 0.1 g/mile PM. EPA Tier two averages are 0.07 g/ mile NOx and 0.01 g/mile PM

[311] "PNGV frets over Bush budget cuts," Harry Stoffer and John D. Stoll, *Automotive News*, April 16, 2001

[312] "Ford explains use of Japanese hybrid parts," Richard Truett, *Automotive News*, September 3, 2001

By the end of 2000, with the gasoline-hybrid Toyota Prius and Honda Civic already for sale in the US, GM, Ford and DaimlerChrysler had unveiled their first PNGV prototypes. The GM Precept, Ford Prodigy, and Dodge ESX3 all relied on diesel-hybrid powertrains and were estimated to achieve greater than 70 mpg.[313] While the productions of the concept cars satisfied one of the goals of PNGV, the market was led by the Japanese. American automakers designed their first marketable vehicles—such as the Ford Escape gasoline hybrid—in response to overseas pressure, not the PNGV program. They even bought or licensed Japanese technology. Moreover, it is unclear how much of the research classified as PNGV-related would have taken place without the program at all, as a consequence of manufacturers' scheduled R&D and contracts already in place at the national research labs.

At the end of 2001, PNGV participants could point to the commercial migration of a few promising technologies but no market-shifting influence. A PNGV director at the Department of Commerce testified before the Senate in December of that year, and after 8 years of research, listed only three production-available technologies that were the result of PNGV research.[314] Each one was an application of lightweight materials—a plastic hardtop in the model year 2001 Jeep Wrangler, 412 pounds of aluminum in the 2000 Lincoln LS, and a composite truck box on the 2001 Chevrolet Silverado.[315]

During the entire span of the PNGV activity, from 1993 to 2001, fuel economy standards for cars and light trucks stayed almost constant.[316] Some have argued that

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[313] Prepared statement of Dr. Claude C. Gravatt, Jr., Director, Manufacturing Competitiveness & PNGV, DOC, before the Committee on Commerce, Science, and Transportation, US Senate, December 6, 2001
[314] Ibid
[315] Ibid
[316] The standard for cars remained at 27.5 mpg. The standard for light trucks increased from 20.4 mpg in 1993 to 20.7 mpg in 1996 and remained at that level. (*Automobile and Light Truck Fuel Economy: Is CAFE up to Standards?*, Robert Bamberger, Congressional Research Service, September 16, 2002)

PNGV provided political cover for Detroit and the Clinton administration, which relied on diversionary and unproductive PNGV activity to resist increasing CAFE levels[317]and to permit collusion instead of competition between companies.[318]

FreedomCAR

In January 2002 President Bush replaced the Clinton-era PNGV with a similar "leapfrog" type joint R&D project, FreedomCAR, in which CAR stands for "Cooperative Automotive Research."[319] According to the Department of Energy, the goals of FreedomCAR are to

- Enhance energy efficiency and productivity;
- Bring clean, reliable, and affordable energy technologies to the marketplace; and
- Make a difference in the everyday lives of Americans by enhancing their energy choices and their quality of life.[320]

The program, like PNGV, mostly ignores emerging technologies and focuses on high-risk endeavors: fuel cell power, hydrogen storage, hydrogen production and distribution, advanced combustion systems, advanced energy storage systems and lightweight materials.[321] FreedomCAR supports research on petroleum combustion engines, but its primary goal is hydrogen-based propulsion.

[317] "FreedomCAR needs firm milestones," editorial, *Automotive News*, January 14, 2002
[318] *Partnership for a new generation of vehicles: a decade of lost opportunity*, Amy Buckley, 2001, available from author
[319] *Multi-year Program Plan: FreedomCAR & Vehicle Technologies*, US DOE, August 2004
[320] US Department of Energy, Energy Efficiency and Renewable Energy, http://www.eere.energy.gov/vehiclesandfuels/about/index.shtml
[321] Ibid

FreedomCAR program goals differ from PNGV in a few notable ways. Rather than setting performance targets for a production-capable prototype vehicle, FreedomCAR establishes goals for underlying processes and technology that must be met in order to facilitate the long term goal of facilitating the transition to hydrogen-based vehicle systems.[322] FreedomCAR does not require participants to develop a prototype vehicle.

Unlike PNGV, which was a multi-agency program, the Department of Energy is the only government partner in FreedomCAR. Due to the extended focus on hydrogen fuel systems, however, the partnership was expanded to include government, the US Council for Automotive Research, and five energy companies: BP America, Chevron Corporation, ConocoPhillips, ExxonMobil Corporation, and Shell Hydrogen (US).[323] FreedomCAR envisions "by 2015, enablement of the private sector to make a decision about the commercialization of fuel-cell-powered personal transportation vehicles that run on economically competitive hydrogen produced from a variety of energy sources"[324] Such an objective is more than ambitious. *Automotive News* claims that the goal of FreedomCAR—practical fuel cell passenger vehicles—is "akin to President Kennedy's call 40 years ago for landing a man on the moon before the end of the 1960's."[325]

Actually, FreedomCAR may be even more technologically ambitious than the moon shot, considering cost constraints, and unfortunately, the program may have been constructed to repeat the unsuccessful PNGV model. Besides the three differences mentioned above (hydrogen fuel commitment, lack of a vehicle prototype requirement,

[322] *Review of the research program of the FreedomCAR and fuel partnership*, National Research Council, First report, 2005
[323] Ibid
[324] Ibid
[325] "FreedomCAR needs firm milestones," opinion, *Automotive News*, January 14, 2002

reorganized agency and industry participants), FreedomCAR inherits many of the structural flaws of its older sibling. Doing away with PNGV and instituting FreedomCAR, in the view of *Automotive News*, "means that taxpayer money, above and beyond the more than $1.5 billion spent in the past decade, will keep flowing to the same automotive research, guided by the Big Three, that has recorded novel advances but no dramatic breakthroughs for production vehicles."[326]

So far, that prediction has more or less been accurate. While the Partnership has published a list of key accomplishments (a summary of two to three dozen research initiatives),[327] no technology has yet moved from the lab to the showroom. All the while, funding for FreedomCAR activities has generally been on par with PNGV levels, and was approximately $310 million for fiscal year 2005.[328]

The National Research Council, in its first review of the program, finds that inappropriate and inflexible funding might fatally hinder FreedomCAR. "Of concern to the committee is the allocation by Congress of significant funds to specific organizations for activities that will contribute little to achieving the Partnership's objectives. ...This has negatively impacted projects in safety, the production of hydrogen from fossil fuel and renewable energy sources, and hydrogen storage. One possible result is that not enough knowledge and technology will be available by 2015, when commercial feasibility will be assessed, making a positive assessment less likely."[329]

[326] "FreedomCAR: real solution or tax waste?" Harry Stoffer, *Automotive News*, June 10, 2002
[327] 2004 FreedomCAR and Fuel Partnership Accomplishments, http://www.uscar.org/freedomcar/2004%20FreedomCARFP%20Accomplishments%20Final.pdf
[328] *Review of the research program of the FreedomCAR and fuel partnership*, National Research Council, First report, 2005
[329] Ibid

The Achilles heel of FreedomCAR, as the NRC repeatedly cautions, is the viability of clean and economical hydrogen production, transport, and energy conversion. To this end, the first review of the FreedomCAR program recommends that "An ongoing, integrated, well-to-wheels assessment should be made of the Partnership's progress toward its overall objectives of reducing the nation's dependence on oil and introducing hydrogen as a transportation fuel, if appropriate."[330]

Just such an analysis of well-to-wheels efficiency leads many to debate the value of a hydrogen-based program like FreedomCAR.

Hydrogen and Other Alternatives

Any analysis of the true efficiency of self-propelled vehicles must take into account the energy required to acquire the fuel source and transport it onboard—the so-called "well to tank efficiency"—and the losses inherent in the vehicle system (engine, transmission, drag, friction, etc.). The total ratio of energy out to energy in is the "well to wheel" efficiency of the vehicle.

Frank Kreith, emeritus professor of engineering at the University of Colorado, analyzed the well-to-wheel efficiency of 12 combinations of powertrain (conventional and hybrid spark ignition (SI), conventional and hybrid diesel, fuel cell, battery-electric), and alternative fuel (natural gas, Fisher-Tropsch diesel, Fisher-Tropsch diesel/gas mix, methanol, steam reformed hydrogen, electrolyzed hydrogen). Except for the electrolyzed

[330] Ibid

hydrogen, natural gas was considered the feedstock processed to produce each of the fuel alternatives to diesel and gasoline.[331]

Overall, the most efficient fuel/powertrain combinations are hybrid diesel or hybrid SI using Fisher-Tropsch diesel, natural gas, or a Fisher-Tropsch diesel/natural gas mix (30% - 32% efficient).[332] Hydrogen fuel cells using steam reformed natural gas follow close behind, yielding 27% well-to-wheel efficiency.[333] Hydrogen fuel cells using electrolyzed hydrogen are the least efficient (13%).[334]

Even assuming that steam reformed hydrogen fuel cells are chosen as the preferred technology of choice (though they are a less efficient system than hybrids), the enormous cost of a nationwide hydrogen infrastructure must be considered, which Argonne National Laboratory has estimated could be $500 billion or more.[335] Other potentially cost-prohibitive factors lie in the fuel cells themselves, which are currently made using a platinum catalyst. The precious metal requirement imposes significant cost hurdles for mass production, and finding an alternative material or method of manufacturing a fuel cell for motor vehicles is "Nobel Prize-winning work," according to Professor Donald Sadoway of MIT.[336]

Hydrogen-powered vehicle research is a high risk and long-term endeavor that lends itself perfectly to the nation's federally-funded laboratories, which can investigate the potential of fuel cell technology independently of automakers. More practical near-

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[331] "Gauging efficiency, well to wheel," Frank Kreith and R.E. West, *Mechanical Engineering*, June 2003
[332] Ibid
[333] Ibid
[334] Ibid
[335] *Cost of some hydrogen infrastructure options*, Mintz., M, Folga, S., Molberg, J., Gillette, J., Transportation Technology R & D Center, Argonne National Laboratory, January 16, 2002
[336] "Eco-friendly cars must travel a long way to reality," Elizabeth Thomson, MIT News Office, February 12, 2003, http://web.mit.edu/newsoffice/2003/hydrogen-0212.html

term research in alternative fuels should focus on vehicle technology that is closer to commercial production and also compatible with current infrastructure.

Other Alternatives – Natural gas, biofuels, and advanced hybrids

Natural gas, biofuels, and advanced hybrid technology all offer efficiency and emissions advantages when compared to conventional gasoline engines; and compared to hydrogen-based propulsion systems, each presents a much lower technological and infrastructural burden to surmount in order to be practical on a mass scale. Current investigations or prototypes of these less-consuming and less-polluting technologies show that each could displace petroleum-based vehicle platforms in some form much more quickly than hydrogen fuel cells.

Natural gas, for example, is cleaner burning than petroleum-based fuels, plentiful, and filling stations are already in place. Natural gas vehicles emit 25 percent less carbon dioxide and 35 to 60 percent less nitrogen oxides than a conventional gasoline engine,[337] and there are presently 1.9 million miles of natural gas distribution lines[338] and over 1,000 refueling stations.[339] The Honda Civic GX, powered by compressed natural gas, was awarded the Greenest Car award for 2005 by ACEEE, even ahead of gasoline-hybrids like the Honda Insight and Toyota Prius.[340]

Biofuels, made from recycled organic feedstock, have recently become much more efficient, economical, and popular. The wide variety of biofuels includes corn-

[337] Compressed Natural Gas fact sheet, EPA, http://www.epa.gov/otaq/consumer/fuels/altfuels/420f00033.pdf
[338] American Gas Association, http://www.aga.org/Template.cfm?section=About_Natural_Gas
[339] Natural gas in the transportation sector, Natural Gas.org, http://www.naturalgas.org/overview/uses_transportation.asp
[340] A red-letter year for green vehicles: gasoline powered SUV earns spot on "Greenest vehicles of 2005" list, news release, ACEEE, February 15, 2005

based ethanol common in the US, sugar-based ethanol used in Brazil, cellusolic ethanol made from waste, trees and grass, and biodiesel. University of California Professor Dan Kammen, an author of the most recent study of ethanol use, says that while corn ethanol is slightly better than fossil fuel on a net energy basis, "you wouldn't go out and rebuild our economy around corn-based ethanol."[341] However, Kammen's report, published in *Science*, found that cellusolic ethanol offers even greater advantages than corn-based ethanol, and according to Kammen, "ethanol could replace 20 to 30 percent of fuel usage in this country with little effort in just a few years."[342] Kammen notes that almost all light trucks sold today are flex-fuel vehicles capable of burning E85, the ethanol/gasoline mix, though they are rarely advertised as such. Further, the cost of converting a conventional vehicle to one that is flex-fuel capable is only about $100.[343]

Besides alternative fuels, conventional hybrid technology can be improved to achieve well over 100 mpg by upgrading the batteries and controllers to permit an interface with the electric grid. So-called "plug-in hybrid electric vehicles" (PHEV) drastically increase fuel economy and can be programmed to help regulate power flow along the grid. If grid electricity is generated from clean or renewable sources—instead of from dirty coal or oil—the operation of plug-in hybrids releases significantly less emissions (including greenhouse gas emissions) than running petroleum-based vehicles. The California Cars Initiative (CalCars) modifies commercially-available Priuses to achieve 65 mpg for longer trips and up to infinite mpg (no gasoline use) for short trips.[344]

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[341] "Ethanol can replace gasoline with significant energy savings, comparable impact on greenhouse gases," UC Berkeley Press Release, January 26, 2006
[342] *Ethanol can contribute to energy and environmental goals*, Farrel, A.E., Plevin, R. J., Turner, B. T., Jones, A.D., O'Hare, M., Kammen, D., Science, January 27, 2006, pp. 506-508
[343] Ethanol can replace gasoline with significant energy savings, comparable impact on greenhouse gases, UC Berkeley Press Release, January 26, 2006
[344] Fact sheet: CalCars PRIUS+ Conversions, June 1, 2005

DaimlerChrysler has announced its own PHEV vehicle, the Sprinter.[345] According to Professor Kreith, "plug-in hybrids are the way to go."[346]

Put simply, the narrow emphasis on hydrogen fuel cells by the FreedomCAR program doesn't make much sense. There are other options available now, at low cost, that offer energy and environmental benefits. As the American Society of Chemical Engineers states, "the US must not abandon R&D on conventional energy systems which clearly have more near-term promise in reducing energy use, pollution and greenhouse gas emissions. Fuel cells and hydrogen are not a panacea for car and truck transportation, and may never be."

This is not the advice of novices considering an unknown technology. Fuel cells are useful in many applications, but to peg the future of clean and efficient motor vehicle transportation on one technology with demonstrable drawbacks while superior near-term options are extant is socially irresponsible and technologically ignorant. President Bush focuses the nation on a FreedomCAR not viable for many years and costing perhaps $1 trillion while current technology could be applied to immediately begin conserving energy and lower vehicle emissions.

The urgent need for sustainable motor vehicle transportation demands that national research initiatives deliver expedient solutions. It would be prudent to continue hydrogen research, but not without losing sight of all the applicable technology, from conventional combustion improvements to hybrid powertrains to biofuels, that could more readily improve the energy and environmental performance of the fleet.

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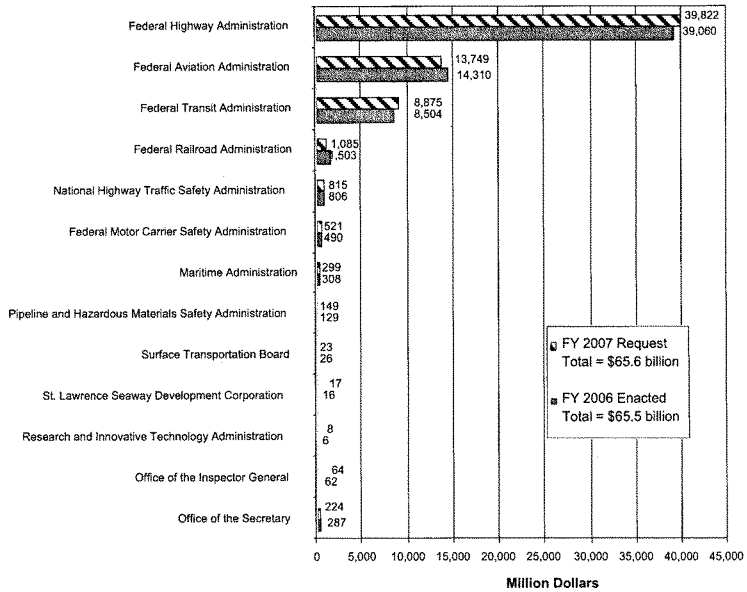
[345] "Diesel engine combined electric engine, Mercedes-Benz vehicle now also with hybrid drive," press release, DaimlerChrylsler, June 30, 2004, http://www.daimlerchrysler.com/dccom/0,,0-5-7165-1-428612-1-0-0-0-0-0-1371-7165-0-0-0-0-0-0-0,00.html

[346] Telephone conversation with Professor Frank Kreith, May 19, 2005

Appendix

Department of Transportation Budget



NHTSA Funding Breakdown FY 2006 Enacted	
	Million $
Highway Safety	44.5
Research and Development	30.8
Highway Traffic Safety Grants	572.4
General Administration	0.4
Salaries and Operating Expenses	37.1
Behavioral Safety	**685.3**
Rulemaking	12.7
Enforcement	18.1
Research and Development	41.1
General Administration	0.3
Salaries and Operating Expenses	46.2
Vehicle Safety	**118.4**
Environmental Stewardship	**2.9**
Total	806.5

NHTSA Funding by Activity
FY 2006 Enacted
Millions of Dollars